

IS NSF PROPERLY MANAGING ITS ROTATING STAFF?

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT &
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY
COMMITTEE ON SCIENCE, SPACE, AND
TECHNOLOGY

HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

June 25, 2015

Serial No. 114-27

Printed for the use of the Committee on Science, Space, and Technology



Available via the World Wide Web: <http://science.house.gov>

U.S. GOVERNMENT PUBLISHING OFFICE

97-567PDF

WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

HON. LAMAR S. SMITH, Texas, *Chair*

FRANK D. LUCAS, Oklahoma	EDDIE BERNICE JOHNSON, Texas
F. JAMES SENSENBRENNER, JR., Wisconsin	ZOE LOFGREN, California
DANA ROHRABACHER, California	DANIEL LIPINSKI, Illinois
RANDY NEUGEBAUER, Texas	DONNA F. EDWARDS, Maryland
MICHAEL T. McCAUL	SUZANNE BONAMICI, Oregon
MO BROOKS, Alabama	ERIC SWALWELL, California
RANDY HULTGREN, Illinois	ALAN GRAYSON, Florida
BILL POSEY, Florida	AMI BERA, California
THOMAS MASSIE, Kentucky	ELIZABETH H. ESTY, Connecticut
JIM BRIDENSTINE, Oklahoma	MARC A. VEASEY, Texas
RANDY K. WEBER, Texas	KATHERINE M. CLARK, Massachusetts
BILL JOHNSON, Ohio	DON S. BEYER, JR., Virginia
JOHN R. MOOLENAAR, Michigan	ED PERLMUTTER, Colorado
STEVE KNIGHT, California	PAUL TONKO, New York
BRIAN BABIN, Texas	MARK TAKANO, California
BRUCE WESTERMAN, Arkansas	BILL FOSTER, Illinois
BARBARA COMSTOCK, Virginia	
DAN NEWHOUSE, Washington	
GARY PALMER, Alabama	
BARRY LOUDERMILK, Georgia	
RALPH LEE ABRAHAM, Louisiana	

SUBCOMMITTEE ON OVERSIGHT

HON. BARRY LOUDERMILK, Georgia, *Chair*

F. JAMES SENSENBRENNER, JR., Wisconsin	DON BEYER, Virginia
BILL POSEY, Florida	ALAN GRAYSON, Florida
THOMAS MASSIE, Kentucky	ZOE LOFGREN, California
BILL JOHNSON, Ohio	EDDIE BERNICE JOHNSON, Texas
DAN NEWHOUSE, Washington	
LAMAR S. SMITH, Texas	

SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY

HON. BARBARA COMSTOCK, Virginia, *Chair*

FRANK D. LUCAS, Oklahoma	DANIEL LIPINSKI, Illinois
MICHAEL T. McCAUL, Texas	ELIZABETH H. ESTY, Connecticut
RANDY HULTGREN, Illinois	KATHERINE M. CLARK, Massachusetts
JOHN R. MOOLENAAR, Michigan	PAUL TONKO, New York
BRUCE WESTERMAN, Arkansas	SUZANNE BONAMICI, Oregon
DAN NEWHOUSE, Washington	ERIC SWALWELL, California
GARY PALMER, Alabama	EDDIE BERNICE JOHNSON, Texas
RALPH LEE ABRAHAM, Louisiana	
LAMAR S. SMITH, Texas	

CONTENTS

June 25, 2015

Witness List	Page 2
Hearing Charter	3

Opening Statements

Statement by Representative Barry Loudermilk, Chairman, Subcommittee on Oversight, Committee on Science, Space, and Technology, U.S. House of Representatives	5
Written Statement	6
Statement by Representative Donald S. Beyer, Jr., Ranking Minority Mem- ber, Subcommittee on Oversight, Committee on Science, Space, and Tech- nology, U.S. House of Representatives	7
Written Statement	9
Statement by Representative Daniel Lipinski, Ranking Minority Member, Subcommittee on Research, Committee on Science, Space, and Technology, U.S. House of Representatives	10
Written Statement	11

Witnesses:

The Honorable Allison Lerner, Inspector General, National Science Foundation	
Oral Statement	12
Written Statement	15
Dr. Richard Buckius, Chief Operating Officer, National Science Foundation	
Oral Statement	26
Written Statement	28
Discussion	32

Appendix I: Answers to Post-Hearing Questions

Dr. Richard Buckius, Chief Operating Officer, National Science Foundation	44
--	----

Appendix II: Additional Material for the Record

Statement by Representative Lamar S. Smith, Chairman, Committee on Science, Space, and Technology, U.S. House of Representatives	54
Statement by Representative Eddie Bernice Johnson, Ranking Member, Com- mittee on Science, Space, and Technology, U.S. House of Representatives	55
Report submitted by Representative Barry Loudermilk, Chairman, Sub- committee on Oversight, Committee on Science, Space, and Technology, U.S. House of Representatives	56

IS NSF PROPERLY MANAGING ITS ROTATING STAFF?

THURSDAY, JUNE 25, 2015

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT &
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
Washington, D.C.

The Subcommittees met, pursuant to call, at 9:34 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Barry Loudermilk [Chairman of the Subcommittee on Oversight] presiding.

LAMAR G. SMITH, TEXAS
CHAIRMAN

EDDIE BERNICE JOHNSON, TEXAS
RANKING MEMBER

Congress of the United States
House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

2321 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515-6301

(202) 225-6371

www.schroze.house.gov

Subcommittees on Oversight and Research and Technology

Is NSF Properly Managing its Rotating Staff?

Thursday, June 25, 2015

9:30 a.m. – 12:00 p.m.

2318 Rayburn House Office Building

Witnesses

Ms. Allison Lerner, Inspector General, National Science Foundation

Dr. Richard Buckius, Chief Operating Officer, National Science Foundation

**U.S. House of Representatives
Committee on Science, Space, and Technology
Subcommittee on Oversight
Subcommittee on Research and Technology**

HEARING CHARTER

Is NSF Properly Managing its Rotating Staff?

Thursday, June 25, 2015
9:30 a.m. – 12:00 p.m.
2318 Rayburn House Office Building

Purpose

The Oversight and Research & Technology Subcommittees will hold a joint hearing titled *Is NSF Properly Managing its Rotating Staff?* on Thursday, June 25, 2015, in Room 2318 of the Rayburn House Office Building. The hearing will examine the National Science Foundation's (NSF) use of "rotators" or external researchers and educators from across the United States in addition to the NSF's permanent scientific staff. Nearly 1/3 of all NSF program officers are rotators, who are involved in making funding decisions. Most of these rotators come to NSF under the authority of the Intergovernmental Personnel Act (IPA) assignments. The NSF relies on IPAs to carry out the agency's mission, while administering little oversight and training for IPAs in management positions.

Witnesses

- **Ms. Allison Lerner**, Inspector General, National Science Foundation
- **Dr. Richard Buckius**, Chief Operating Officer, National Science Foundation

Background

The National Science Foundation (NSF) uses the Intergovernmental Personnel Act (IPA) to staff top scientists, engineers, and educators from universities and industry on a temporary basis in an attempt to maintain an enhanced scientific workforce. The NSF also employs Visiting Scientists, Engineers, and Educators (VSEE's), which together with the IPAs form the NSF "rotator" program.¹ The "rotator" program brings expertise, fresh perspective, and diverse skillsets to the NSF.

NSF IPAs remain employees of their home institutions and their salaries are matched by the NSF throughout the tenure as an IPA (less than four years).² The IPAs' salaries are funded

¹ National Science Foundation, Inspector General, *Audit of NSF's Workforce Management: Rotating Director Model* (Mar. 30, 2010), Available at: http://www.nsf.gov/oig/_pdf/10_2_009.pdf.

² National Science Foundation, Inspector General, *Audit of Cost Associated with NSF's Use of Intergovernmental Personnel Act Assignees* (Mar. 20, 2013), Available at: http://www.nsf.gov/oig/_pdf/IPA-13-2-008.pdf.

through NSF Program Funds in the form of NSF grants to the individual IPA's home institution. In addition to salaries, the NSF pays for additional costs associated with IPAs including: lost IPA consulting fees, temporary living expenses, individual research and development travel, and fringe benefits.³ As of August 2012, the NSF employed 184 IPAs or 12% of the total NSF workforce, which is disproportionately higher than other comparable agencies.⁴

According to a 2013 Inspector General report, IPAs cost the NSF on average \$36,448 more per IPA than the average permanent federal employee.⁵ IPA-related costs totaled more than \$6.7 million in 2013.⁶ Furthermore, a 2010 IG report found that IPAs in management level positions at the NSF lacked the institutional knowledge regarding federal employment protocols, training, and expectations.

New Inspector General Report

The NSF IG completed a report on June 19, 2015, outlining a specific circumstance where clear conflicts of interest existed at NSF between an IPA and recipients of NSF grants the IPA oversaw.⁷ The NSF IG made several recommendations including the suspension of the three grants awarded in light of clear conflicts of interests. The NSF IG is prepared to discuss the findings of the report in addition to recommendations to prevent similar situations from being repeated in the future.

³ Mar. 30, 2013 report

⁴ Mar. 30, 2013 report

⁵ Mar. 30, 2013 report

⁶ Mar. 30, 2013 report

⁷ National Science Foundation, Inspector General, *Opportunities to Strengthen Controls over Rotator Conflicts of Interest* (May. 19, 2015), Available at: http://www.nsf.gov/oig/_pdf/Controls%20over%20Rotator%20COI.pdf.

Chairman LOUDERMILK. The Committee on Science, Space, and Technology joint hearing of the Subcommittee on Oversight and the Subcommittee on Research and Technology will come to order.

Without objection, the Chair is authorized to declare recess of the Committee at any time.

Good morning and welcome to today's hearing titled "Is NSF Managing Its Rotating Staff?" I recognize myself now for five minutes for an opening statement.

I would like to thank our witnesses for being here this morning, and I'm looking forward to hearing from both of you on this very important matter.

We're here today to discuss the National Science Foundation's use of the Rotator Program, specifically, the individuals who are assigned through the Intergovernmental Personnel Act, or IPAs. These IPAs are top scientists, engineers, and educators from universities and industry who help staff the NSF on a temporary basis. In addition, the NSF employs Visiting Scientists, Engineers, and Educators, which, together with the IPAs, form the NSF Rotator Program.

While the Rotator Program brings expertise, diverse skill sets, and fresh perspective to the NSF, IPAs come with a significant cost to the NSF, which is completely unacceptable. For example, these IPAs remain an employee of their home institution and their salaries are matched by the NSF throughout their tenure as an IPA, typically ranging from one to three years. In addition to salary matching, the NSF pays IPAs lost consulting fees, individual research and development travel, fringe benefits, and temporary living expenses.

Considering that NSF employs 184 IPAs, which is 12 percent of the total NSF workforce, these costs add up very quickly. In fact, according to the 2013 NSF Inspector General report, IPAs cost the NSF \$36,448 more per IPA on average than the average permanent federal employee, and in 2013, the NSF spent more than \$6.7 million on IPA-related costs.

When an agency is spending millions on rotating staff—not permanent staff—one would hope that they are the best-suited individuals for the positions they are filling. However, that doesn't appear to be the case with the NSF. In 2010, an NSF IG report found that IPAs in management-level positions at the NSF lacked institutional knowledge about the federal employment protocol, training, and expectations, all key management issues and functions.

The NSF funds a variety of large research projects, including multiuser research facilities, tools for research and education, and distributed instrumentation networks. Taking into account that some of these IPAs come from organizations and institutions that would be interested in some of these funds, there is also the chance that if not properly managed, an IPA could have a conflict of interest with certain proposals and awards. The NSF IG recently released a report detailing a situation that falls into this category, which I am looking forward to learning more about today.

As a small business owner, I unconditionally understand the need for accountability. The fact that these temporary staffers are being paid more money for jobs that they are not necessarily qualified for and have an inherent ability to take advantage of, is com-

pletely inexcusable. Without proper oversight, the NSF is wasting taxpayer dollars on individuals who make more money than they should for jobs they may not be qualified for in roles that are susceptible to conflicts of interest. This Committee has warned the NSF about the irresponsible spending over the past few years, and this is just another unfortunate example. When will the NSF take adequate measures to implement proper oversight, management, and plain responsibility?

I look forward to today's hearing, which I anticipate will inform us more about IPAs at the NSF, the management of them, as well as the oversight and accountability of what they are being paid. We owe it to the American people to ensure that these assignments are not using hard-earned taxpayer money to overpay for subpar work. How does that seem fair?

In the end, though, I hope that this hearing will bring to light the issue of rotating staff and inform us of—on how to provide better oversight and management of federally funded rotating staff to guarantee taxpayers that they can trust us with their money and know that it will be spent in the most efficient way.

[The prepared statement of Chairman Loudermilk follows:]

PREPARED STATEMENT OF OVERSIGHT SUBCOMMITTEE
CHAIRMAN BARRY LOUDERMILK

I would like to thank our witnesses for being here this morning. I am looking forward to hearing from you both on this very important matter. We are here today to discuss the National Science Foundation's (NSF) use of the "rotator" program, specifically, the individuals who are assigned through the Intergovernmental Personnel Act (IPAs).

These IPAs are top scientists, engineers, and educators from universities and industry who help staff the NSF on a temporary basis. In addition, the NSF employs Visiting Scientists, Engineers, and Educators (VSEEs), which together with the IPAs form the NSF "rotator" program.

While the "rotator" program brings expertise, diverse skill sets, and fresh perspectives to the NSF, IPAs come with a significant cost to the NSF, which is completely unacceptable. For example, these IPAs remain an employee of their home institution and their salaries are matched by the NSF throughout their tenure as an IPA, typically ranging from one to three years. In addition to salary matching, the NSF pays IPAs lost consulting fees, individual research and development travel, fringe benefits, and temporary living expenses.

Considering that NSF employs 184 IPAs, which is 12% of the total NSF workforce, these costs add up very quickly. In fact, according to a 2013 NSF Inspector General report, IPAs cost the NSF \$36,448 more per IPA on average than the average permanent federal employee, and in 2013, the NSF spent more than \$6.7 million on IPA-related costs.

When an agency is spending millions on rotating staff—not permanent staff—one would hope that they are the best suited individuals for the positions they are filling. However, that doesn't appear to be the case with the NSF. In 2010, an NSF IG report found that IPAs in management-level positions at the NSF lacked institutional knowledge about federal employment protocol, training, and expectations—all key management issues and functions.

The NSF funds a variety of large research projects, including multi-user research facilities, tools for research and education, and distributed instrumentation networks. Taking into account that some of these IPAs come from organizations and institutions that would be interested in some of these funds, there is also the chance that if not properly managed, an IPA could have a conflict of interest with certain proposals and awards. The NSF IG recently released a report detailing a situation that falls into this category, which I am looking forward to learning more about today.

As a small business owner, I unconditionally understand the need for accountability. The fact that these temporary staffers are being paid more money for jobs that they are not necessarily qualified for and have an inherent ability to take ad-

vantage of, is completely inexcusable. Without proper oversight, the NSF is wasting taxpayer dollars on individuals who make more money than they should for jobs they may not be qualified for in roles that are susceptible to conflicts of interest. This Committee has warned the NSF about irresponsible spending over the past few years, and this is just another unfortunate example. When will the NSF take adequate measures to implement proper oversight, management, and plain responsibility?

I look forward to today's hearing, which I anticipate will inform us more about IPAs at the NSF—the management of them as well as the oversight and accountability of what they are being paid. We owe it to the American people to ensure that these assignments are not using hard-earned taxpayer money to overpay for sub-par work. How does that seem fair? In the end, though, I hope that this hearing will bring to light the issue of rotating staff and inform us on how to provide better oversight and management of federally-funded rotating staff to guarantee taxpayers that they can trust us with their money and know that it will be spent in the most efficient way.

Chairman LOUDERMILK. I now recognize the Ranking Member of the Subcommittee on Oversight, the gentleman from Virginia, Mr. Beyer, for an opening statement.

Mr. BEYER. Thank you, Mr. Chairman.

The National Science Foundation employs thousands of hard-working scientists and staff, many of whom live in my district, and I value the tremendous benefit that the agency has brought to America and Americans over the past 65 years by supporting a wide range of scientific discoveries that have improved our understanding of every facet of the world around us.

As with any organization, public or private, sometimes problems emerge. Management improvements can be made and administrative oversight enhanced. Today's hearing will focus on the management and oversight of the NSF's Rotator Program.

The NSF's Rotator Program, primarily Intergovernmental Personnel Act positions, allows nonfederal employees from academic institutions and research labs to work at NSF for a temporary period of up to four years. The advantage of this program is that it guarantees a continuous infusion of scholars at the forefronts of their fields.

This approach to staffing is similar to another program that has long been viewed as one of the most valuable in the U.S. Government, in fact, the most valuable in the world, the Defense Advanced Research Projects Agency. DARPA also relies on rotators to come in and manage research portfolios focused on innovative emerging research.

While there are obvious benefits to this program, it's impossible to use such a system without running some risks. IPA staff are not necessarily trained managers but fill professional staff positions, and as NSF relies on the IPA program to fill positions far in excess of other federal agencies, this can cause some problems among rank-and-file employees. IPAs have also not been brought up through the civil service ranks with an appreciation of the importance of avoiding conflicts of interest.

Each year, NSF provides around \$7 billion in grant awards and cooperative agreements to academic institutions. It's widely praised for the efficiency of its grants management system and widely copied by foreign governments looking to spur creativity and innovation.

However, when employees of grant-receiving institutions come to NSF on temporary assignment, it's important that the Foundation

routinely ensure that each rotator is properly trained and monitored to ensure they manage their portfolio wisely and in compliance with the law. The Foundation must take prompt steps to identify potential conflicts of interest and that the rotators have the proper training to understand their obligations to avoid violating conflict-of-interest rules at the agency.

Today, we'll hear from the Inspector General about a single rotator who failed to meet obligations for disclosing conflicts and for taking ethics training. The IG found that the individual was involved in three grant decisions where inappropriate ties to the grant recipient call into question the integrity of the award. It's hard to determine whether the degree of this one failing represents systemic issues with the way NSF manages IPAs or whether it's just an unfortunate one off failing, but I agree with the IG that this incident points to broader management issues regarding NSF's oversight of the Rotator Program, and the recommendations contained in their report seem reasonable and obviously overdue.

I know NSF has not had much time to evaluate the specific recommendations, but I believe that where management problems exist, they need to be quickly fixed. Where conflicts of interest emerge, they need to be removed and rectified, and the public has to have confidence that NSF is managing its funds with absolute integrity.

These new recommendations regarding conflict-of-interest policies join a standing list of other Inspector General recommendations on the program that were designed to control the costs of that program. While NSF has moved to put some of these changes in place, I'm disappointed to learn that those reforms have been moving a very, very slow track.

Without endorsing any particular recommendation at this time, NSF should know that we, the members of this Oversight Committee, expect this leadership to do more and quickly in this area. I believe that the Rotator Program as a whole can bring great benefit to NSF and to the Federal Government. It helps to spark fresh and innovative ideas, it fosters collaboration between the Federal Government and America's intellectually rich academic community and improves the advancement of scientific discoveries and cutting-edge technological developments on a wide range of subjects.

As we strive to promote greater economic efficiencies on the NSF Rotator Program, I believe it's important to keep the benefits of the program in mind. One bad case does not a crisis make and the Committee would be well-served to keep this in mind. We read the sad story of the two-star Army General this week in trouble. We've watched how various Members of our Congress have been in trouble just this year, and we don't want to throw out the baby with the bathwater.

I look forward to hearing from our two witnesses about—both about the issues that have been identified but the acts that you've taken to correct them.

Thanks very much, Mr. Chairman. I yield back.

[The prepared statement of Mr. Beyer follows:]

PREPARED STATEMENT OF SUBCOMMITTEE ON OVERSIGHT
 MINORITY RANKING MEMBER DONALD S. BEYER, JR.

The National Science Foundation (NSF) employs thousands of hard-working scientists and staff, many of whom live in my district. I value the tremendous benefit that the agency has brought to America and Americans over the past 65 years by supporting a wide range of scientific discoveries that have improved our understanding of every facet of the world around us.

As with any organization, public or private, problems sometimes emerge. Management improvements can be made and administrative oversight enhanced. Today's hearing will focus on the management and oversight of the NSF's "Rotator" program.

The NSF's rotator program, primarily Intergovernmental Personnel Act positions, allows nonfederal employees from academic institutions and research labs to work at NSF for a temporary period of up to four years.

The advantage of this program is that it guarantees a continuous infusion of scholars at the forefront of their fields. This approach to staffing is similar to another program that has long been viewed as one of the most valuable in the U.S. government: the Defense Advanced Research Projects Agency. DARPA also relies on "rotators" to come in and manage research portfolios focused on innovative, emerging research.

While there are obvious benefits to this program, it is impossible to use such a system without running some risks. IPA staff are not necessarily trained managers, but fill professional staff positions. And NSF relies on the IPA program to fill positions far in excess of any other federal agency. This can cause some problems among the rank and file employees. IPA's also have not been brought up through the Civil Service ranks with an appreciation of the importance of avoiding conflicts of interest.

Each year, NSF provides around \$7 billion in grant awards and cooperative agreements to academic institutions. NSF is widely praised for the efficiency of its grants management system, and widely copied by foreign governments looking to spur creativity and innovation. However, when employees of grant-receiving institutions come to NSF on temporary assignment it is important that the Foundation routinely insure that each rotator is properly trained and monitored to insure they manage their portfolio wisely and in compliance with the law. The Foundation must take prompt steps to identify potential Conflicts-of-Interest and that rotators have the proper training to understand their obligations to avoid violating conflict of interest rules at the agency.

Today, we will hear from the NSF IG about a single rotator who failed to meet obligations for disclosing conflicts and for taking ethics training. The IG found that the individual was involved in three grant decisions where inappropriate ties to the grant recipient calls into question the integrity of the award.

It is hard to determine the degree to which this one failing represents systemic issues with the way NSF manages IPAs, or whether it is an unfortunate "one-off" failing. I agree with the IG that this incident points to broader management issues regarding NSF's oversight of the rotator program and the recommendations contained in their report seem reasonable, and perhaps obviously overdue. I know NSF has not had much time to evaluate the specific recommendations, but I believe that where management problems exist they need to be quickly fixed. Where conflicts-of-interest emerge they need to be removed and rectified. The public has to have confidence that NSF is managing funds with absolute integrity.

These new recommendations regarding conflicts of interest policies join a standing list of other IG recommendations on the IPA program that were designed to control costs in those programs. While NSF has moved to put some of those changes in place, I am disappointed to learn that those reforms have been on a very, very slow track. Without endorsing any particular recommendation at this time, NSF should know that I expect its leadership to do more and more quickly in this area.

I believe the Rotator program as a whole can bring great benefit to NSF and to the federal government. The program helps to spark fresh and innovative ideas. It fosters collaboration between the federal government and America's intellectually rich academic community. It improves the advancement of scientific discoveries and cutting edge technological developments in a wide range of subjects.

As we strive to promote greater economic efficiencies on the NSF rotator program and endeavor to enhance the agency's administrative management and oversight of potential Conflicts of Interest I believe it is important to keep the benefits of the program in mind. One bad case does not a crisis make and the Committee would be well served to keep this in mind.

I look forward to hearing from our two witnesses both about the issues that have been identified and the actions that have been taken to correct them.

Thank you very much. With that I yield back.

Chairman LOUDERMILK. Thank you, Mr. Beyer.

If there are any Members who wish to submit additional opening statements, your statements will be added to the record at this point.

At this point I ask unanimous consent to enter documents into the record.

Without objection.

Chairman LOUDERMILK. At this time I'd like to introduce our witnesses. Our first witness is Ms. Allison Lerner. Ms. Lerner is the Inspector General for the National Science Foundation, or the NSF. Before joining the NSF in April 2009, Ms. Lerner served in many leadership positions at the Department of Commerce, including counsel to the Inspector General. She has received several national awards for excellence and was selected to be a member of the Government Accountability and Transparency Board by the President in June 2011. Ms. Lerner received her law and undergraduate degrees from the University of Texas.

The final witness today—on today's panel is Dr. Richard Buckius. Dr. Buckius is the Chief Operating Officer for the NSF. Mr. Buckius assumed his position of COO in October 2014, having previously been a Senior Policy Advisor for NSF. He is an author and coauthor of numerous publications on the topics of radiation, heat transfer, numerical fluid mechanics and combustion. Dr. Buckius received his bachelor's, master's and Ph.D. in mechanical engineering at the University of California, Berkeley.

At this point the Chair would like to recognize the—I'd like to recognize the Ranking Member of the Subcommittee on Research and Technology, the gentleman from Illinois, Mr. Lipinski, for her opening statement.

Mr. LIPINSKI. Well, kind of close.

Chairman LOUDERMILK. Or his. I'm sorry, sir.

Mr. LIPINSKI. Thank you.

Chairman LOUDERMILK. You're—my apologies. Instead of—I thought I was—I had it right and then I read the script.

Mr. LIPINSKI. That's always a mistake.

Chairman LOUDERMILK. Yes.

Mr. LIPINSKI. Well, I—

Chairman LOUDERMILK. My apologies.

Mr. LIPINSKI. I apologize for being late. I understand we had to move this up because of votes.

I want to thank Chairman Loudermilk and Chairwoman Comstock for holding this hearing on NSF's management of the IPA Rotator Program. I want to thank Dr. Buckius and Ms. Lerner for being here. Good morning.

I—you know, we know what the issues are. Reports issued by the NSF Inspector General over the last few years, including last Friday's report, make it clear that there are some management and oversight issues with the Rotator Program that are worthy of our concern and attention. However, as we pursue our oversight responsibilities, we should not lose sight of the tremendous value

that the Rotator Program brings to NSF and to the scientific community.

NSF has a very talented workforce across the board. Long-term federal employees serving in program officer and executive positions come to the agency with many years of experience in scientific research, as well as in managing program budgets in participating NSF grant review process. Those recruited to executive positions are also experienced managers. After several years at NSF, their institutional memory and knowledge of federal rules and regulations is invaluable.

But we also know that rotators also come to NSF with many years of experience and similar skills. And what makes the Rotator Program unique and essential is that rotators provide a constant influx of new ideas, new perspectives, and a frontline understanding of emerging trends in science and engineering. As such, they are particularly well placed to evaluate high-risk, high-reward research proposals and ensure that NSF continues to support a portfolio that includes transformative research, a topic which we discuss often in this committee.

While exploring options to strengthen management of the program and to implement cost controls, we should not even unintentionally take steps that compromise the benefits this program provides to the agency and to scientific progress.

Now, having said that, the Inspector General has raised several issues in the last few years that warrant our review. From the cost associated with the IPA program to the management benefits such as independent research and development and the requirements such as ethics training, there is room for improvement. The Foundation received the most recent report on a conflict-of-interest case only last Friday, giving them little time to review the specific recommendations. It might have been better, perhaps, to postpone this hearing by a couple months. However, we are here today.

This particular case dates back to 2013, so I expect Dr. Buckius will be able to share with us some of his thinking about what went wrong in terms of management controls and how procedures can be tightened up going forward. I also hope that Dr. Buckius will be able to share with us actions NSF has taken since the 2012 and 2013 IG reports to strengthen management and oversight of other aspects of the Rotator Program.

In no way do I want to diminish the issues that have been raised. We need to make sure that we are providing oversight and that NSF is responding appropriately to the findings.

I want to thank the witnesses for being here, I look forward to your testimony. Thank you.

[The prepared statement of Mr. Lipinski follows:]

PREPARED STATEMENT OF SUBCOMMITTEE ON RESEARCH & TECHNOLOGY
MINORITY RANKING MEMBER DANIEL LIPINSKI

Thank you, Chairman Loudermilk and Chairwoman Comstock for holding this hearing on NSF's management of the IPA Rotator program. And good morning to Dr. Buckius and Ms. Lerner.

Reports issued by the NSF Inspector General over the last few years, including last Friday's report, make it clear that there are some management and oversight issues with the rotator program that are worthy of our concern and attention. However, as we pursue our oversight responsibilities, we should not lose sight of the tre-

mendous value that the rotator program brings to NSF and to the scientific community.

NSF has a very talented workforce across the board. Long-term federal employees serving in program officer and executive positions come to the agency with many years of experience in scientific research as well as in managing program budgets and participating in the NSF grant review process. Those recruited to executive positions are also experienced managers. After several years at NSF, their institutional memory and knowledge of federal rules and regulations is invaluable.

Rotators also come to NSF with many years of experience and similar skills. What makes the rotator program unique and essential is that rotators provide a constant influx of new ideas, new perspectives, and a front-line understanding of emerging trends in science and engineering. As such, they are particularly well-placed to evaluate high-risk, high-reward research proposals and ensure that NSF continues to support a portfolio that includes transformative research, a topic we discuss often in this committee. While exploring options to strengthen management of the program and to implement cost controls, we should not—even unintentionally—take any steps that compromise the benefits this program provides to the agency and to scientific progress.

Having said that, the Inspector General has raised several issues in the last few years that warrant our review. From the costs associated with the IPA program, to the management of benefits—such as Independent Research & Development, and requirements—such as ethics training, there is room for improvement.

The Foundation received the most recent report on a Conflict of Interest case only last Friday, giving them little time to review the specific recommendations. It might have been better, perhaps, to postpone this hearing by a couple of months. However, we are here today, and this particular case dates back to 2013, so I expect Dr. Buckius will be able to share with us some of his thinking about what went wrong in terms of management controls, and how procedures can be tightened up going forward. I also hope that Dr. Buckius will be able to share with us actions NSF has taken since the 2012 and 2013 IG reports to strengthen management and oversight of other aspects of the rotator program.

I thank the witnesses for being here today and I look forward to their testimony. I yield back.

Chairman LOUDERMILK. Again, thank you, Mr. Lipinski, and again, my sincere apologies.

Pursuant to the committee rules, all witnesses will be sworn in before they testify. If you'll please rise and raise your right hand.

Do you solemnly swear or affirm that the testimony you are about to give will be the truth, the whole truth, and nothing but the truth, so help you God?

Let the record reflect that the witnesses answered in the affirmative.

Before we begin, I will request that our witnesses please limit your testimony to five minutes. It seems there will be another series of votes called in about an hour and I want to make sure that we have time for discussion. Your entire written statement will be made part of the record.

I now recognize Ms. Lerner for five minutes to present her testimony.

**TESTIMONY OF THE HONORABLE ALLISON LERNER,
INSPECTOR GENERAL,
NATIONAL SCIENCE FOUNDATION**

Ms. LERNER. Mr. Chairman and Members of the Subcommittee, I appreciate this opportunity to discuss my office's oversight of NSF's management of its rotating staff, especially assignments under the Intergovernmental Personnel Act. I'll focus on recommendations made in three audits completed by my office, one on cost associated with NSF's use of rotators, a second on personnel management issues related to rotators, and a third on NSF's man-

agement and oversight of the Independent Research and Development program, or IR/D.

Finally, since rotators often make funding decisions, I'll discuss a recent investigative report which identified ways for NSF to improve its controls to identify and mitigate rotators' conflicts of interest.

To advance its mission of supporting science and engineering research and education, NSF brings scientists, engineers, and educators from academia, industry, or other organizations to the Foundation for rotational assignments of up to four years. While there are definitely benefits that come from having rotators at NSF, there are also challenges. For example, because of rotators' limited tenure, there's almost constant turnover in staff, especially in senior leadership positions. Other challenges include higher cost for rotators and rotators' lack of familiarity with government processes and culture.

The additional cost of using rotators instead of permanent federal employees is considerable. We found that NSF paid an added cost of approximately \$6.7 million or an average of over \$36,000 per IPA for the 184 IPAs we looked at in a 2013 audit. We recommended that NSF evaluate ways to reduce these costs such as increasing rotators' use of telework, increasing cost-sharing by home institutions, and limiting salary to the maximum federal pay rate for the position. NSF has developed a plan to examine rotator costs, but much work remains to be done to accomplish the actions included in that plan.

NSF's reliance on rotators also poses personnel management challenges. For example, at the time of our 2010 audit, NSF did not require rotators to have annual performance evaluations even though they functioned in the same capacity as NSF's federal executives who are evaluated each year. As a result, NSF risks not holding IPAs accountable as it does federal employees for accomplishing NSF's missions and goals. In response to our recommendations, NSF has put all IPAs under a performance management system and reports that it received 117 IPA appraisals in the most recent cycle.

We also examined controls over NSF's IR/D program, which is utilized primarily by rotators to maintain their professional competencies and remain actively involved with their research while at NSF. At the time of our 2012 audit, NSF policy allowed IR/D participants to spend up to 50 days a year, or 20 percent of their time, on IR/D activities. In 2010, IR/D travel costs were \$1.8 million. Rotators and other visiting scientists took 90 percent of the IR/D trips during this period. Since our audit, the Foundation has strengthened oversight of the IR/D program and taken steps to reduce its costs.

In light of the Foundation's reliance on rotators to make funding decisions, it's critical that strong controls be in place to identify and mitigate conflicts of interest that occur as a result of rotators' research activities or their connections with their home institutions. Such controls protect rotators, many of whom have never worked in a federal environment, as well as the Foundation itself.

A recent investigative report documented problems with controls over COIs that we identified in the context of one rotator's tenure

at NSF. We found that no concrete plan to manage the rotator's known conflict was developed and communicated, that there were significant delays in the rotator's completion of a required ethics course and her submission of a required financial disclosure form, that actions taken to assess the impact of the rotator's conflicts of interest on an award she made were seriously flawed, that the names of the persons who wrote the justification for funding and who actually made the decision to fund the award with which the rotator had conflicts were not included in NSF's system of record, undermining the agency's ability to identify and mitigate conflicts of interest, and that a critical tool used to enforce the one-year cooling-off period following the rotator's tenure at NSF was circumvented.

We recommended that NSF take various actions to strengthen its controls over conflicts. Since we just issued our investigative report last week, the agency has not had an opportunity to formally respond.

Rotating staff are an important component of NSF's workforce and bring valuable experience to the Foundation. While we recognize the significant contributions made by rotators, it's essential for NSF to examine the cost associated with the rotator program to ensure that federal funds entrusted to the Foundation are being spent effectively and efficiently. It's also critical that funding justifications and recommendations made by rotators be free from conflicts of interest, as the integrity of those decisions is essential to NSF's merit review process.

My office remains committed to providing rigorous and dependent oversight of NSF's management of its rotating staff and will continue to work with the Foundation and the Congress to this end.

I'd be happy to answer any questions.

[The prepared statement of Ms. Lerner follows:]

STATEMENT OF ALLISON C. LERNER

INSPECTOR GENERAL

NATIONAL SCIENCE FOUNDATION

Before a Hearing of the

House Committee on Science, Space, and Technology

Subcommittee on Oversight

Subcommittee on Research and Technology

Is NSF Properly Managing its Rotating Staff?

June 25, 2015

Mr. Chairman and Members of the Subcommittee, I appreciate this opportunity to discuss the National Science Foundation (NSF) Office of Inspector General's (OIG) work addressing NSF's management of its rotating staff. My office is committed to providing rigorous, independent oversight of NSF, and I welcome the chance to discuss my office's work to promote economy and efficiency in NSF's programs and operations.

As requested, my testimony will address the OIG's oversight of NSF's management of its rotating staff, especially assignments under the Intergovernmental Personnel Act (IPA). I will focus on findings and recommendations made to NSF in three audits completed by my office in the past few years—one on costs associated with NSF's use of rotators, a second on personnel management issues related to NSF's use of rotators, and a third focused on NSF's management and oversight of the Independent Research/Development Program (IR/D), which rotators use to travel to their home institutions, attend conferences, and participate in other activities to help them remain actively involved in their research projects.

Finally, since rotators often serve as program officers who are responsible for making award funding decisions, I will discuss a recent management implication report my office issued, which identified opportunities for NSF to improve its controls to identify and mitigate rotators' conflicts of interest (COIs).

Background

The OIG is an independent entity and reports directly to Congress and the National Science Board. Our mission is to conduct independent audits and investigations of National Science Foundation programs and operations, and to recommend policies and corrective actions to promote effectiveness and efficiency and prevent and detect waste, fraud, and abuse. Consistent with our statutory mandate, the OIG has an oversight role and does not determine policy or engage in management activities involving the Foundation or program operations. Thus, my office is not responsible for managing any NSF programs, nor do we attempt to assess the scientific merit of research funded by the Foundation.

The National Science Foundation (NSF) is an independent federal agency whose mission is “to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.” To support this mission, NSF funds approximately 20 percent of all federally-supported basic research conducted at the nation’s colleges and universities, primarily through grants and cooperative agreements. In order to accomplish its mission, NSF seeks to maintain a world-class staff of scientists, engineers, and educators who bring current knowledge, insight, and cutting-edge perspectives to the scientific and engineering research and education funded by NSF.

NSF is divided into seven directorates that support science and engineering research and education. Each directorate is headed by an executive level Assistant Director and Deputy Assistant Director or equivalent. Assistant Directors are required to implement strategic plans, develop a highly qualified staff, and lead and motivate an organization.

Each directorate consists of a number of divisions, which are headed by a Division Director, who is supported, in most instances, by a Deputy Division Director or equivalent. A primary responsibility of Division Directors is to provide leadership and guidance to division scientific, technical, and administrative staff. Division Directors also determine funding requirements, prepare and justify budget estimates, balance program needs, allocate resources, oversee the evaluation of proposals, make recommendations for awards and declinations, and represent NSF to relevant external groups.

Intergovernmental Personnel Act Mobility Program

To advance the agency's mission of supporting science and engineering research and education, NSF supplements its permanent staff by bringing scientists, engineers, and educators on rotational assignments from academia, industry, or other eligible organizations to the agency. All of the individuals serving under non-permanent appointments are considered to be federal employees, except for employees serving under the Intergovernmental Personnel Act (IPA), who remain employees of their home institution.

The Intergovernmental Personnel Act of 1970 provides authority for the temporary assignment of skilled personnel to or from federal, state, local or tribal governments, or institutions of higher education and other eligible organizations without the loss of employee rights and benefits. It permits individuals to serve in a temporary capacity for a period of up to four years. IPA assignments are voluntary and require the agreement of the participating employee. NSF obtains most of its temporary scientists, engineers, and educators using the IPA Act. The Foundation believes using IPAs in its directorates and offices strengthens its ties with the research community and provides talent and resources that are critical to meeting NSF's mission.

Since IPAs remain employees of their home institutions, their home institutions continue to administer the IPAs’ pay and benefits. Accordingly, IPAs are not subject to federal pay and benefits limitations. It is important to note that NSF’s source of funding for IPAs is different from the appropriation that funds its employees. NSF reimburses the home institution for an IPA’s salary and benefits using grants funded through its program-related appropriations.

While there are benefits that come from having rotators at NSF, there are also challenges. For example, the Act permits individuals to serve in a temporary capacity for up to four years; as a result of this limited tenure, there is almost constant turnover in staff at NSF, especially in senior leadership positions. Other challenges include higher costs for rotators and rotators' lack of familiarity with federal government processes and the federal government culture.

Costs Associated with NSF's Use of Rotators

In August 2012, IPAs comprised approximately 12 percent of NSF's overall workforce, and occupied approximately 31 percent of all program director positions and 17 percent of the Foundation's executive positions, including Assistant Directors who lead NSF's science directorates. The number of IPAs NSF uses annually has increased from 126 in 2004 to 190 in 2012, with IPAs growing from nine to twelve percent of the NSF workforce over that period.

The additional cost of using IPAs instead of hiring permanent federal employees is significant. We found that NSF paid an annual additional cost of approximately \$6.7 million, or an average of over \$36,000 per IPA, for the 184 IPAs we examined in our audit. Higher costs for IPAs result from NSF's effort to make IPAs "whole" by providing the salary and fringe benefits they were earning at their home institutions, as well as reimbursing them for travel to NSF, temporary living expenses, lost consulting income and state income taxes if the IPA is from a state that does not have an income tax. Following is a summary of the primary categories of higher costs associated with IPAs.

Salaries: We found that, for one year, NSF incurred an additional cost of slightly over \$3 million for IPA salaries. We considered additional cost to be the cumulative amount an IPA's salary exceeded the average salary for a permanent federal employee in the same or a comparable position.

In August 2012, NSF had 21 IPAs at the executive level and 163 non-executive IPAs, 154 of which were program directors. NSF paid 54 IPAs salary exceeding the federal executive pay limit of \$179,700, which is the highest salary that could be earned by a federal employee at NSF, including presidential appointees. NSF paid 34 of these IPAs an annual salary of \$200,000 or more, with the highest annual salary of \$301,247 paid to an Assistant Director.

Fringe Benefits: IPAs continue to receive fringe benefits (such as retirement and health and life insurance) from their home institution. We calculated that NSF paid nearly \$800,000 in additional fringe benefit costs for the 184 IPAs we identified.

NSF does not know the individual components (health insurance, retirement, child care, etc.) of costs comprising the fringe benefit packages it pays for IPAs. NSF reimburses the home institution for its contribution to the IPA's fringe benefit package based on a percentage or dollar amount provided by the institution. Because of the wide variety of fringe benefits that can be provided by an employer, the cost of fringe benefits for IPAs varies widely. For the 184 IPAs we examined, NSF paid employer contributions for the IPA fringe benefits at rates ranging from 8 to 60 percent of salary, with an average rate of 31 percent of compensation. In comparison, NSF paid its permanent employees an average fringe benefit rate of 26 percent of compensation.

Lost Consulting: IPAs can receive up to \$10,000 annually to replace consulting income they had been earning if they agree to discontinue consulting activities while on assignment at NSF and can provide tax records to support the amount earned. Permanent federal employees do not receive payments for lost consulting income; therefore, all lost consulting paid is an additional cost to NSF. NSF paid 58 of the 184 IPAs (or 32 percent) lost consulting payments at a total annual cost of \$337,823. The average amount NSF paid to IPAs that received lost consulting was \$5,726, with payments ranging from \$500 to one IPA to \$10,000 to 13 IPAs.

Temporary Living Expenses: IPAs can receive a household move or partial reimbursement for lodging, meals and incidental expenses (i.e., per diem) for temporarily relocating to NSF for the duration of their assignment. Ninety-two percent of the 184 IPAs we examined (169 of 184) came from outside of the Washington, DC metropolitan area and all opted to receive temporary living expenses (per diem paid at a maximum of \$22,507 for each year of their assignment) instead of relocation expenses to move their household, costing NSF approximately \$3.8 million annually.

In comparison, over the most recent two year period, NSF hired a total of 77 permanent federal employees, for an average of 39 per year, in positions similar to those held by IPAs (such as in science directorates and the Office of the Director). Of these 77 new hires, 51 percent were paid relocation expenses, which cost NSF an average of \$501,274 per year in the two years we examined.¹

Long Term Vision for Rotator Programs

As described above, NSF invests a significant amount of time and money into bringing IPAs into the agency. While our audit was underway, the agency prepared a whitepaper to describe the value and benefits of IPAs to NSF. The document details at a high level how IPAs contribute to NSF's mission and how the flexibilities afforded by the Intergovernmental Personnel Act help NSF attract leading scientists, engineers, educators, and others. But it did not demonstrate, nor did we find evidence during the course of our audit, that anyone at NSF was responsible for measuring and documenting the impact of rotating personnel, including IPAs, on the agency as a whole.

As a result, the agency misses opportunities to assess the rotator programs' overall contribution to NSF's mission and goals. Given the number of IPAs at NSF at any given moment, their prevalence in the highest ranks of the agency and the added costs that result from their use, it would be helpful if NSF designated a champion responsible for overseeing and managing the rotator programs as a whole.

Opportunities to Reduce Costs for Rotators

We identified several possible ways that costs associated with rotators could be reduced, such as increasing the use of telework from rotators' home institutions, increasing cost sharing by home institutions, limiting salary to the maximum federal pay rate for the position, and reviewing the highest fringe benefit rates paid to rotators.

¹ We used an average of the last 2 FYs of relocation expenses because the amounts varied significantly: relocation costs in FY 2011 were \$702,217, while such costs in FY 2012 (through September 14, 2012) totaled \$300,332.

We recommended that NSF evaluate ways the cost of using IPAs can be reduced. Such actions could include studying expanded use of telework, achieving greater cost sharing, limiting annualization of IPA salaries to the federal pay rate for the position, and reviewing fringe benefit rates that exceed an amount determined by NSF.

In response to our recommendation, NSF hired a contractor in February 2014 to conduct focus groups (comprised of rotators and rotators' managers) as part of an assessment of its use of the Intergovernmental Personnel Act. In June 2014, NSF provided the results of this effort, which concluded that the focus groups reinforced "the numerous benefits of NSF's IPA program and shed light on some key challenges." However, this effort did not suggest any cost saving strategies.

In August 2014, NSF developed a draft list of additional actions it could take to minimize the costs of IPAs. Among other things, NSF indicated that it would develop and make available to staff guidelines on IR/D travel and telework (FY 15), finalize a one-page document for outreach to institutions about the benefits of the IPA program, and improve eJacket documentation of cost share requests and institutional responses (beginning in FY 15). In June of 2015 we found that 1) NSF had produced no formal guidelines on IR/D travel and telework, though it indicated that many divisions have begun to implement the idea of mixing IR/D and telework in single trips; 2) the document on the benefits of the IPA program has not been crafted; and 3) at present IPA awards are not initiated in eJacket. Much work remains to be done for NSF to accomplish the items on its list.

Personnel Management Issues Associated with Rotators

In response to a Senate request, we conducted an audit to determine whether NSF's rotating director model ensured effective personnel management performance and oversight at the executive level. At the time of our audit, NSF had 1,489 total staff--1099 permanent staff and 174 IPAs. Rotators filled over a quarter of NSF's executive-level science positions. As a result, there was a great deal of turnover in NSF's executive ranks.

We found that NSF's reliance on rotators presented workplace management challenges in part because NSF did not require IPAs to have annual performance evaluations even though they functioned in the same capacity as NSF's federal executives, whose performance is evaluated each year. As a result, NSF risked not holding IPAs accountable, as it does federal employees, for accomplishing NSF's mission and goals. The audit also noted that rotators generally do not have prior working knowledge of the federal government culture or management practices because they rotate into NSF from universities and other institutions, which gives them a steep learning curve when they arrive at NSF.

We recommended that NSF create a performance management process for IPAs that included performance standards and annual performance assessments, among other things. Beginning in 2011, NSF made a call for performance plans for IPAs at and below the executive level, which it indicated brought all IPAs under a performance management system. As of June 2015, NSF reported that it had 24 executive level plans in its HR system. NSF also indicated that it had received ten executive level IPA appraisals and 107 program level IPA appraisals in the 2013-

2014 cycle. NSF has also created a course on Introduction to Federal Supervision at NSF, which it reports many IPA supervisors are taking.

We also recommended that NSF implement a process for integrating new executives that included a focus on management processes for IPAs. NSF utilizes its Executive Leadership Retreat, which addresses a number of federal government processes and procedures, to provide such training.

Independent Research/Development Travel Program

NSF's Independent Research/Development (IR/D) Program permits both employees and non-permanent staff to maintain their professional competencies and remain actively involved with their professional research while working at NSF. IR/D activities should relate to accomplishing NSF's goals and are considered to be official duties. At the time of our audit, of 250 working days in a year, NSF policy allowed IR/D participants to spend up to 50 (20 percent) days a year on IR/D activities. In 2010 IR/D travel costs were \$1.8 million for 314 participants; rotators and visiting scientists took 90 percent of IR/D trips during this period.

Our 2012 audit found that NSF management lacked sufficient oversight controls to properly monitor the IR/D program and had not fully assessed its impact on travel costs, staff time and NSF's workload. Further, NSF had not identified the program's goals or quantified expected outcomes. In response to recommendations made in our audit and by an IRD Task Group NSF created in response to an OIG management implication report on IR/D travel, NSF has strengthened management controls over the IR/D program and taken steps to reduce program costs. For example, the Foundation issued guidance encouraging IR/D participants to reduce costs by making fewer trips of longer duration and by using virtual tools while working at NSF headquarters. NSF also created an IR/D Council, which reviews implementation of the program, including participants' compliance with program guidance. NSF also requires IR/D participants to complete training on proper use of the program.

Opportunities to Improve Controls over Rotator Conflicts of Interest

To accomplish its mission, in FY 2014 NSF funded approximately 11,000 new competitive awards. In that year, NSF convened panels of external experts that evaluated 48,100 proposals through a competitive merit review process. The panels made recommendations to NSF program officers and directors, including rotators, who made the final funding determinations.

In light of the Foundation's reliance on rotators to make funding decisions, it is critical that strong controls be in place to identify and mitigate conflicts of interests (COIs) that occur as a result of rotators' own research activities or their connections with their home institutions, which might be seeking NSF funding. Such controls protect incoming rotators—many of whom have never worked in a federal environment and are thus unfamiliar with the laws and rules that will govern their behavior at NSF—as well as the Foundation itself.

We prepared a management implication report to document problems with those controls we found in the context of one rotator's tenure at NSF. While the circumstances we detailed relate to the management of just one rotator's conflicts in one NSF division, the extent of the problems we identified—ranging from the failure to adequately mitigate and manage known COIs upon the rotator's arrival at NSF, to the inaccuracy of award information contained in eJacket, and the

circumvention of the control over the cooling off period—seriously undermine the Foundation’s ability to identify, manage, and mitigate rotator COIs.

We found that:

Division staff and the rotator did not develop, document, and communicate a plan to manage the rotator’s known conflicts upon her arrival at NSF

Prior to the rotator’s arrival at NSF, her supervisor at her home institution was concerned that the rotator’s position at NSF might prevent the home institution from receiving NSF funding. Despite the rotator’s known conflict, no clear plan was developed to manage and mitigate her COIs at the outset of her tenure at NSF.

The rotator reviewed several proposals that contained letters of support from her home institution. In one of those proposals, for which she wrote the letter of support, she had also recently collaborated with the PI and the co-PI—both of which constitute additional COIs.

Developing and documenting a plan as to how the rotator’s conflicts would be managed immediately upon her arrival at NSF would have enabled the rotator and all of the individuals working with her to take concrete, appropriate steps to deal with those conflicts over the course of her tenure at NSF. Creating such a plan, along with taking appropriate training, at the outset of the rotator’s arrival at NSF would have ensured that the rotator was sensitized to other potential conflicts she might have—such as the ones associated with individuals with whom she had recently collaborated.

Significant delays in the rotator’s completion of a required ethics course and submission of required financial disclosure form undermined the rotator’s and NSF’s ability to prevent, identify, and manage conflicts

NSF requires all new program staff, including rotators, to attend a one-hour, in-person course covering the basic COI laws and rules, as well as gifts, travel, and other matters. and “some of the myths rotators seem to pass on to one another.” The rotator arrived at NSF in March of 2012; in May of that year she received an email reminder from the NSF Office of General Counsel concerning her need to complete the course by December 31, 2012. The rotator received further reminders from OGC to take the required in-person ethics training on November 20, 2012, and on December 17, 2012. On December 31, 2012, after the rotator received a final reminder to take the required online training by the end of business that day, she completed the online course.

NSF also requires incoming rotators to file an Executive Branch Personnel Confidential Financial Disclosure Report), covering the 12 months prior to their appointment, within 30 days of their arrival at NSF. The rotator was informed of this requirement by OGC on March 11, 2012, and reminded by OGC staff of her need to complete the form on April 18, 2012, and May 17, 2012. After the intervention of the rotator’s supervisor, the rotator finally submitted the required form.

The significant delays in the rotator’s completion of the required ethics course and her submission of a required financial disclosure form undermined both the rotator’s and NSF’s ability to identify, manage, and mitigate the rotator’s conflicts. These controls exist to protect both the rotator and the Foundation. The failure of the rotator to respond to the repeated

reminders to take the ethics course and complete the financial disclosure form is quite concerning, as is the fact that her supervisors allowed her to work for an extended period without ensuring that she completed either task.

When NSF became aware that the rotator had approved an award with which she had conflicts, the actions taken to assess the impact of the COI on the award were seriously flawed

In March of 2013, the Designated Agency Ethics Official (DAEO) expressed concern to directorate management about the rotator's decision to fund proposals that contained letters of support signed by the rotator or other individuals from her home institution, and recommended that the directorate have someone from another division re-examine those awards to ensure that they were warranted.

The first assessment of those awards resulted in an unwarranted and unsupported assurance to directorate management that the COI had no negative impact on the award. The supervisor informed the Deputy Assistant Director that he did not believe there was any basis to question the rotator's impartiality with respect to the award and that the independent reviewer had found no evidence of bias. It is noteworthy that the supervisor provided this determination to his management *before* he received an assessment from the independent reviewer. In fact, the independent reviewer informed the supervisor that he saw little justification for the award based on the proposal itself.

When the problems with the first assessment were identified, the OIG recommended that the awards be suspended while the assessment recommended by the DAEO was conducted. The second assessment determined that normal procedures were followed and there was no indication of favoritism resulting from a COI. We found that although the second assessment was conducted by a reviewer from outside the rotator's directorate, the supervisor did not give the reviewer any information about the rotator's conflicts. Thus, the second reviewer's report stated she was unable to review potential COIs. When interviewed by OIG, the second reviewer stated that, in general, the three proposals she reviewed were not of the caliber that she would expect to see funded by NSF. When presented with information about the rotator's conflicts, the reviewer stated that the award should not have been made and that an objective program officer should conduct a fresh review to result in a new recommendation.

The fact that two successive efforts to determine whether the awards identified by the DAEO were warranted both resulted in unsupported conclusions raises a question as to whether NSF management really knows how to respond to such a concern.

Information in eJacket for one of the awards in question reflected neither the person who wrote the justification for funding nor the person who actually made the decision to fund the award, undermining the agency's ability to identify and mitigate COIs

At NSF, all funding actions associated with an award are supposed to be documented in eJacket, which serves as the official government record of those decisions. Knowing which individuals are involved in the decision to fund an award is critical to managing conflicts of interests, as COIs are inevitably tied to specific individuals.

During the course of our investigation, we found that the individual documented as the decision maker for the award with which the rotator had conflicts actually gave no independent thought to

whether the award should have been made, while the identities of the persons who made the funding decision and wrote the funding justification are missing. We also found that at least some of the rotators in the directorate felt they could require their successors to honor funding decisions they had made but not documented.

A critical tool used to enforce the one-year cooling-off period following the rotator's tenure at NSF was circumvented

All individuals who receive NSF funding have a unique PI number (the PI ID) that tracks their funding history at NSF. For rotators, the PI ID also reflects their temporary tenure at NSF. When a rotator's time at NSF ends, they begin a one-year cooling off period during which any communications between the former rotator and NSF staff about a proposal involving the former rotator must be done through a substitute negotiator because the former rotator is prohibited from engaging in substantive discussions with NSF staff. Because a rotator's tenure at NSF is associated with his or her PI ID, if a former rotator applies for funding within the cooling off period, a warning banner flags the conflict and signals that NSF personnel should not be directly communicating with the former rotator about funding.

We found that shortly after the rotator left NSF, and while she was in the cooling off period, her institution applied for \$14 million in NSF funding for a project for which the rotator was the PI. Normally the rotator's PI ID would have indicated that she was in a cooling off period and needed to appoint a substitute negotiator for the proposal. In this case, however, the rotator used a new PI ID that did not reflect her funding history with NSF and did *not* contain the COI warning flag relating to her period as a rotator. We could not determine precisely who created the second ID, although it appears to have been done by someone within the agency.

Recommendations to Improve Controls over Rotators' COIs

By bringing their up-to-the minute research experience to NSF, rotators make significant contributions to the quality of the Foundations' funding process. In light of their ongoing research and organizational affiliations, rotators also bring COIs, which NSF must identify, mitigate, and manage. Strong controls designed to address COIs ultimately protect both the rotator and NSF. Based on the issues we noted in our investigation, we recommended that NSF take appropriate action to strengthen those controls. Such action should include:

1. Ensuring that immediate, concrete steps are taken to develop, document and communicate plans to manage rotators' known conflicts upon their arrival at NSF.
2. Ensuring that all incoming staff—including rotators—attend in-person ethics training and, when required, submit financial disclosures as soon as possible after coming to NSF. As noted previously, in the past OIG has recommended that new employees attend the training within 3 months of their arrival at NSF. In the case of rotators with known conflicts, NSF should require that the training be taken within 30 days of their arrival.
3. Developing enforcement tools—such as suspending the PO or rotator from proposal and award review duties until they comply—to enforce the timeframes associated with ethics and financial disclosure requirements.
4. Ensuring that individuals who supervise POs, including rotators, are provided with timely access to the status of their employees' compliance with ethics and financial disclosure

requirements and understand that they are accountable for their staff's prompt compliance with those requirements.

5. Suspending the three awards identified by the DAEO and having an objective PO conduct a *de novo* review of those awards to determine if they are warranted.
6. Ensuring that all staff understand the negative impact that unaddressed COIs can have on the integrity of the merit review process, and that any questions about the impact such COIs can have on a funding decision are swiftly, appropriately and effectively addressed.
7. Ensuring that all program staff, including rotators, understand that eJacket must accurately reflect the names of the individuals who make funding recommendations and decisions.
8. Clarifying when, if ever, an outgoing rotator can make funding commitments that his or her successors must implement and, if such a commitment can be made, how it should be documented in eJacket.
9. Determining the extent to which outgoing rotators make undocumented funding commitments that their successors must implement, and program officers or rotators write funding recommendations that they do not sign, elsewhere in the directorate and across the Foundation.
10. Ensuring that neither of its systems (FastLane or PARS) allow the creation of a duplicative PI ID without an explicit override by Division of Information Systems and that the need for this override be justified and documented.
11. Determining whether the large number of individuals within the agency who are able to create PI IDs should be reduced to enhance the integrity of the process.

Conclusion

All three parties – NSF, IPAs and their home institutions – benefit from IPA assignments. NSF gains new ideas and expertise from the research community, IPA assignees learn about NSF programs and the merit review process, and the IPAs' home institutions benefit from the knowledge of and experience with NSF and its processes that IPAs bring back when they return.

While we recognize the significant contributions of NSF's rotating staff, we have not found that NSF has identified and implemented concrete actions to reduce the costs of making rotators whole. In fact, in some instances, the agency is routinely deviating from policies that were instituted to lessen the financial impact of using rotators. Given the fact that amounts spent on rotators come from the appropriation that funds NSF's research grants, it is essential for NSF to carefully examine those costs to ensure that amounts for rotators are being spent effectively and efficiently.

Finally, ensuring that funding justifications and recommendations are free from conflicts of interest—including those experienced by rotators as a result of their ongoing research and organizational affiliations-- is essential to the integrity of NSF's merit review process. In light of the Foundation's continued reliance on rotators to make funding decisions, it is vital that NSF have strong controls to identify and mitigate possible COIs.

This concludes my statement; I would be happy to answer any questions.

Allison C. Lerner, Inspector General, National Science Foundation

Allison C. Lerner assumed the duties as Inspector General of the National Science Foundation (NSF) in April 2009. As head of the Office of Inspector General she recommends policies for promoting economy, efficiency and effectiveness of NSF programs and operations. She leads efforts to prevent and detect fraud, waste, and abuse; improve the integrity of NSF programs and operations; and investigate allegations of misconduct in science. Prior to becoming Inspector General at NSF, Ms. Lerner served in leadership positions at the Department of Commerce, including Counsel to the Inspector General.

In January 2015, Ms. Lerner was appointed to serve as Vice Chairperson for the Council of Inspectors General on Integrity and Efficiency (CIGIE). The Council is an independent Federal entity whose mission is to address integrity, economy, and effectiveness issues that transcend individual Government agencies. To accomplish its mission, CIGIE continually identifies, reviews, and discusses areas of vulnerability in Federal programs and operations with respect to fraud, waste, and abuse.

Ms. Lerner has received several national awards for excellence, and in June 2011 she was selected by the President to be a member of the Government Accountability and Transparency Board. Ms. Lerner received her law degree and her undergraduate degree from the University of Texas.

Chairman LOUDERMILK. Thank you, Ms. Lerner.
I now recognize Dr. Buckius for five minutes to present his testimony.

**TESTIMONY OF DR. RICHARD BUCKIUS,
CHIEF OPERATING OFFICER,
NATIONAL SCIENCE FOUNDATION**

Dr. BUCKIUS. Thank you, Mr. Chairman. Thank you, Mr. Chairman. Members of the Committee, thank you for the opportunity to discuss NSF's Rotator Programs particularly, as you've heard, the IPA assignments.

NSF supports fundamental research at the frontier across all fields of science and engineering through an investment in more than 42,000 active awards. NSF seeks to create and exploit new concepts in science and engineering and provide global leadership in research and education. This requires NSF to create an ever-changing vision for the future innovations and provide the resources to make vision into a reality. The expertise needed to carry out this work is constantly changing. The challenge for NSF is to blend change with continuity in managing our merit review process and overseeing our awards.

A mix of federal employees and rotators, some of whom are IPAs, is essential to NSF. Experienced federal employees provide continuity of scientific expertise, management, and oversight, while rotators come from across the country with new perspectives in science, engineering, and education. Because NSF supports fundamental research at the frontier, NSF relies on a mix of federal employees and rotators for a constant infusion of new knowledge into the structure of the rigorous merit review process and post-award oversight.

The scientific community sees serving as a rotator at NSF as a public service. The opportunity to serve, while expanding the rotator's scientific perspectives, can disrupt the rotator's personal life and lead to a loss in continuity at the home institution. The IPA's home institution benefits from the experience and expertise the IPA gains but it does not have access to the faculty members, contributions, and all the usual functions during the IPA assignment. Therefore, it is important for NSF to avoid negative impacts on these rotators who choose to engage in the public service.

NSF costs and the oversight of our staff are continually monitored. Reducing our overhead cost to fund discoverers and discoveries is always a goal, and this must be balanced with the impact on our programs and the community. In the case of IPAs, NSF requests cost-sharing from all potential rotators and scrutinizes all salaries above the maximum federal rate.

While rotators perform their responsibilities at NSF, they are not allowed to handle any matters related to their home institution and are subject to NSF policies on conflict of interest, performance, training, and conduct. Like federal employees, rotators must follow conflict-of-interest statutes, as well as government-wide ethics regulations.

To bolster the awareness and compliance of these statutes and regulations, IPAs, like other federal colleagues, are subject to man-

datory conflict-of-interest training. Also like other federal employees, IPAs provide performance plans for their IPA service.

The Foundation has benefited from the Office of the Inspector General reports on opportunities to improve the NSF IPA programs. As she has referred, the 2010 OIG report noted the importance in incorporating the IPAs in the agency's Formal Performance Management System. NSF responded by taking action to incorporate all IPAs, including those operating at and below the executive level, into the agency's Formal Performance Management System. The OIG recommendation was satisfied the very next year. The change ensures that IPAs are held accountable to the agency and to the taxpayers.

This approach to accountability is also applied to NSF's Independent Research and Development Program, IR/D. In response to the OIG management report that identified internal control issues on our IR/D program, NSF immediately formed a task group and proposed changes. In 2012 the OIG auditors favorably reviewed the task force recommendations and suggested additional controls. NSF put those controls in place. The IR/D program, available to federal employees and rotators, now has much more accountability.

I recognize that the OIG released a new report last Friday focused on the management of conflict of interest of our rotators. It is important to note that this was one specific case. Well before the release of the OIG report, the agency worked to address the situation and hold individuals accountable.

My written testimony does not address the report's recommendations due to the timing of its release. I would like to thank the IG, though, for her support of NSF and for her concerns about the integrity of the IPA program.

Mr. Chairman, members of the Committee, bringing scientists, engineers, and educators from the community to join NSF's permanent staff contributes to the NSF mission of advancing the progress of science and its strategic goals of transforming the frontiers and addressing national needs. The Rotator Programs at NSF, including the IPA assignments, are essential elements of achieving NSF's mission. With the support of the OIG and Congress, the Foundation will continue to enhance these programs to best serve science and technology in the national interest.

Thank you again for the opportunity to testify and I look forward to answering your questions.

[The prepared statement of Dr. Buckius follows:]



Testimony of

Dr. Richard O. Buckius
Chief Operating Officer
National Science Foundation

Before the

U.S. House of Representatives
Committee on Science, Space, and Technology

Subcommittee on Research and Technology, and the
Subcommittee on Oversight

on

Is NSF Properly Managing Its Rotating Staff?

June 25, 2015

Madam Chairwoman, Mr. Chairman and Members of the Committee, thank you for this opportunity to discuss rotator programs, particularly Intergovernmental Personnel Act (IPA) assignments, at the National Science Foundation.

The National Science Foundation (NSF) supports fundamental research at the frontiers of knowledge across all fields of science and engineering. NSF serves the national interest as stated by NSF's mission to promote the progress of science; to advance the national health, prosperity and welfare; to secure the national defense; and for other purposes; and we do so through our investment in a portfolio of more than 42,000 active awards. Through the merit review of over 50,000 proposals each year, NSF seeks to create and exploit new concepts in science and engineering and provide global leadership in research and education. This requires NSF to create an ever-changing vision for the future directions of science, engineering, and education and provide the resources to make vision into reality. The vision and skills needed to carry out the agency's work are constantly changing, and the challenge for NSF is to blend constant change with continuity in our approach to managing agency processes and interacting with stakeholders.

NSF provides the opportunity for scientists, engineers, and educators to join the Foundation as temporary program directors, advisors, and leaders. These "rotators" provide input during the merit review process of proposals; help influence new directions in the fields of science, engineering, and education; support cutting-edge interdisciplinary research; and participate in the oversight of major research facilities. Rotators bring fresh perspectives from across the country and across the fields of science and engineering. Because NSF supports fundamental research at the frontiers of science, NSF relies on the synergy of federal employees and rotators for a constant infusion of

new knowledge into the broad understanding of science, and a structure of systematic and rigorous merit review.

A mix of federal employees and rotators, some of whom are IPAs, is essential to NSF. Experienced federal employees complement the immediacy of the rotators' scientific perspectives with their knowledge of long-term trends and provide consistent management and oversight of the Foundation's processes. They are the historical memory of the agency, and the repository of effective business practices.

Rotators can come to NSF under multiple mechanisms. The largest numbers come on Intergovernmental Personnel Act assignments, or IPAs. NSF facilitates IPA assignments through grants to their institution as a reimbursement for salary and benefits. NSF requests that institutions share at least 15 percent of salary and benefit costs for incoming IPA assignments, recognizing that the IPAs home institution benefits from the experience and expertise the IPA gains at NSF. Actual cost sharing depends on a variety of circumstances at the home institution, including the range of the IPA's contributions and functions. Most IPAs choose to continue their research and student advising, often on their own time, working evenings and weekends to meet the needs of students and research collaborators.

The scientific community sees serving as a rotator at NSF as a public service. Rotators are held accountable for many activities, including pre-award and post-award merit review and oversight responsibilities. The opportunity to serve, while expanding the rotator's scientific perspectives, can come with significant financial cost, disruption of the rotator's personal life, and loss of continuity with the home institution. Therefore it is important that NSF hold accountable those in IPA assignments, but also to avoid negative impacts on the faculty member who chooses to engage in public service.

While rotators perform their responsibilities at NSF, they are not allowed to handle any NSF matters related to their home institution, and are subject to NSF's conflicts of interest, performance, training, and conduct policies. All rotators, whether federal employees or IPAs, are subject to criminal conflict of interest statutes (statutes) as well as the Government-wide Standards of Ethical Conduct of Employees of the Executive Branch (regulations) which prohibit them from participating in NSF proposals and awards affecting themselves and their home institutions. To bolster awareness of and compliance with these statutes and regulations, IPAs, like their federal colleagues, including other rotators, file financial disclosure reports and are subject to mandatory conflict of interest training. IPAs, like federal employees who make award recommendations, must file financial disclosure reports. Failure to file may result in disciplinary action (those required to file public reports are subject to statutory fines for failure to do so). Conflicts checks are part of the ethics program to avoid situations wherein rotators make decisions about their own research awards or those of their home institution. NSF ethics officials counsel rotators and permanent employees to avoid even the appearance of conflicts, and recusal from matters is a common mechanism to prevent even an appearance of impropriety.

NSF leaders have benefited from Office of Inspector General (OIG) reports on opportunities for improvements to the NSF IPA program. For example, a March 2010 OIG report criticized NSF for not including IPAs in the agency's formal performance management system, even though IPAs function in the same capacity as Federal employees. NSF responded by taking action to incorporate all IPAs, including those operating at and below the executive level, into the agency's formal performance management system, and the OIG recommendation was satisfied the very next year. The change ensures that IPAs are held accountable to the agency and to taxpayers.

Likewise, IPAs receive training in conflicts of interest, merit review, management, award oversight, and other responsibilities that they may undertake at NSF. Additionally, our Office of Inspector General was helpful in pointing out the need to standardize and systematize the training and mentoring programs for all NSF staff, including IPAs.

This systematic approach to accountability is also manifest in NSF's Independent Research and Development (IRD) program, which permits and supports individuals, including rotators, to maintain involvement with their professional research during their NSF service. All participants in the IR/D program must have their IR/D plans approved in advance (typically annually) by their NSF supervisor and NSF human resources and legal staffs. In response to a September 2010 OIG Management Implications Report that identified internal control issues with the program, NSF formed a task group to formulate program changes. In March 2012, OIG auditors reviewed the task group's recommendations and suggested additional internal controls. NSF agreed with the OIG and put these controls into place.

Madam Chairwoman and Mr. Chairman, bringing scientists, engineers, and educators from the community to join with NSF's permanent staff contributes to NSF's mission of advancing the progress of science and its strategic goals of transforming the scientific frontier and addressing national needs. Effectively used, such talent can challenge preconceived ideas about the importance of specific areas of science and help NSF cross the boundaries of disciplines. The rotator programs at NSF, including IPA assignments, are essential elements in achieving of NSF's mission. With the support of the Inspector General and Congress, the Foundation will continue to enhance these programs to best serve science and technology in the national interest.

Thank you again for the opportunity to testify. I would be pleased to answer your questions.

Richard O. Buckius

Chief Operating Officer
 Senior Science Advisor
 National Science Foundation, Washington, DC, USA

and

Professor of Mechanical Engineering
 Purdue University, West Lafayette, IN

Dr. Richard Buckius has been at the National Science Foundation as a Senior Science Advisor since June of 2014 and Chief Operating Officer since October of 2014. Recently, he was the Vice President for Research and is Professor of Mechanical Engineering at Purdue University (2008-14). Previously, he was Head of the Department of Mechanical and Industrial Engineering (1998-05), Associate Vice Chancellor for Research (1988-91), and Richard W. Kritzer Professor (1992-97) at the University of Illinois at Urbana-Champaign (UIUC). Dr. Buckius also served as the National Science Foundation's Assistant Director for Engineering (2006-08), Director for the Engineering Directorate's Division of Chemical and Transport Systems (2004-05), and Program Director of the Thermal Systems and Engineering Program (1987-88).

Dr. Buckius is author/co-author of numerous publications, books and invited talks and articles in the areas of radiation heat transfer, numerical fluid mechanics, and combustion. He co-authored a textbook titled *Fundamentals of Engineering Thermodynamics* (Mc-Graw-Hill) which was published in English, Spanish and international versions. He is a member of the editorial boards of *Nanoscale and Microscale Thermophysical Engineering*, *Heat Transfer Research*, and *Heat Transfer-Asian Research*. He was Associate Technical Editor for the American Society of Mechanical Engineers (ASME) *Journal of Heat Transfer*.

Among his honors include ASME's Richards Memorial Award, ASME's Potter Gold Medal, Heat Transfer Division 75th Anniversary Medal, and American Society for Engineering Education Ralph Coats Roe Award. He has received numerous teaching awards, including UIUC Campus Award for Excellence in Undergraduate Teaching and six Mechanical Engineering Alumni Teaching awards.

Dr. Buckius received his bachelor's and master's degrees and PhD in mechanical engineering at the University of California, Berkeley, in 1972, 1973 and 1975, respectively.

Chairman LOUDERMILK. Thank you to both of our witnesses for being here today, and now we're going to begin our questioning. And the Chair recognizes himself for five minutes.

As I mentioned in my opening statement, the IG found that in 2013 the NSF spent more than \$6.7 million on IPA-related costs, with the NSF spending on average \$33,448 more on IPA assignments than average permanent federal employees. These costs include salary matching, lost consulting fees, individual research and development travel, fringe benefits, and temporary living expenses.

Dr. BUCKIUS, of that \$6.7 million spent in 2013, how much of it was spent on these varying costs that I just mentioned?

Dr. BUCKIUS. You want the fractions on each one of those?

Chairman LOUDERMILK. Yes, sir.

Dr. BUCKIUS. The biggest one is \$3 million in salaries of the \$6.7 million. It's important to note, too, if you read her report carefully, on a footnote it only provides you the numbers for those that are above the federal rate. If you include those that are below the federal rate, the net gain is only half of that, \$1.5 million. The other costs, lost consulting fees, location allowance, and IR/D are accurate as far as we can tell.

It's also important to note, though, that the IR/D is available to all rotators and federal employees at NSF. Only 63 percent of those allocations are to IPAs. The rest goes to federal employees and visitors. So it's not only available to IPAs.

Chairman LOUDERMILK. Okay. Thank you.

Can you tell me, what did the National Science Foundation spend in 2014 on IPA-related costs?

Dr. BUCKIUS. I'm sorry. I can get you that number. I don't have that with me.

Chairman LOUDERMILK. Okay. You don't?

Dr. BUCKIUS. No, I do not.

Chairman LOUDERMILK. Mrs. Lerner, do you know what that number is?

Ms. LERNER. I do not.

Chairman LOUDERMILK. Okay. That'll be helpful if you could get back with us on that number.

Dr. Buckius, how do you justify the additional cost these IPA assignments—of these IPA assignments than what you pay the average permanent federal employee?

Dr. BUCKIUS. As it's been discussed by Ms. Lerner, as well as Mr. Lipinski, this is a very different agency than a lot of the other agencies. The Rotator Program is an absolutely essential part of our program. We have very, very excellent federal employees that give us the continuity, but we don't have the ability—unlike, say, DOE that has staff that does research at the forefront, has facilities at the forefront. We don't do that. That's not in our mission. By bringing these forefront leaders into our agency, they're able to bring that new expertise, and bring that new knowledge, bring the ability to change into our agency. This is essential to our agency.

The costs that we have to pay, we want to make sure that we can recruit the best possible leaders and scholars to come and help this agency. Therefore, we really need to be able to pay market-force value for these folks in order to get them to come to the agency and serve.

Chairman LOUDERMILK. Can I ask you, is—what benefit do these scientists and other IPAs have leaving their permanent job to take a leave of absence or whatever to come to NSF?

Dr. BUCKIUS. Okay. Let me just preface this with I am an IPA and I was a department head, and I also was an AD, and so I've been on all sides of this issue. As a rotator, when they first come, which I did in '88, you're trying to manage your program at the university, your students, and you're trying to also manage the portfolio that you're having to access at NSF. I would argue most IPAs that are involved in this probably work more than 40 hours a week for sure just in order to make it all work. Your family sometimes stays at home. You then come and spend your time here. In all fairness, it's a 24/7 kind of a job because you don't have your family with you, so you spend a lot of time doing it.

The home institution, though, gains, too, so I don't want to ever belittle that. By bringing the IPA back, the IPA then has a much broader perspective of what the country's about, what the research is about, and that will help—that will definitely help the home unit.

But, unfortunately, the home unit doesn't gain all the other attributes that the faculty member provides, committee work, general advising, and issues that relate to the community aspects of a department. You lost all that. So the department gains and loses: the IPA gains and loses.

What happens, though, is when you're on the side of NSF and we want to recruit these top scholars and we want them to come, we don't want to have any impediments that'll make it more difficult for them to come. As a department head also, I often don't want them to go either because I need them as a department head. It's this constant balance. I think the way we've done it so far, everybody gains and everybody loses, and I think that's probably the fairest way we can go.

Chairman LOUDERMILK. One last question. I see I'm running out of time and I'll be respectful of everyone's time. Is there a recruitment issue or do you have a backlog of those that want to be IPAs?

Dr. BUCKIUS. It is a recruitment issue. We often don't get the people we want for all the commitments that I've just said. Individuals, when they consider coming to NSF, it really affects their long-term career programs, their research programs, and they have to balance that with the public service.

Chairman LOUDERMILK. Are you fully staffed now?

Dr. BUCKIUS. In IPAs, no. We can go up to 195 and I think you said we're at 180. We've been down to as low as 173.

Chairman LOUDERMILK. Okay. Thank you. I see my time is expired and I now recognize Mr. Beyer for five minutes.

Mr. BEYER. Thank you, Mr. Chairman.

Dr. Buckius, I was going to ask you a question about can full-time, long-term government employees provide the same kind of insight and creativity in science that these IPAs do? And I think you've done a great job answering that. I am concerned, though, that the same argument could be made for many other government agencies, for example, the Department of Justice where I see lots of sort of mid-career brilliant attorneys stolen out of private practice who come work for the same governmental maximum for three,

four, six years in order to contribute their expertise on terrorism, on financing, and lots of interesting things.

And—but I'm also particularly aware of the balance between outside people who come in and the long-term federal employees. I was a politically appointed ambassador, and so I'm very sensitive to how that affected the morale of the career foreign service officers who perhaps didn't get a chance to be ambassador because these political guys were there.

So I look at the numbers, the ones that I have at least, of the seven Assistant Directors, six are IPAs; of the 32 Division Directors, 24 are IPAs. If so many of these top-level positions are filled by IPAs, doesn't it give the rank-and-file federal service worker not much hope for career advancement? And what is the effect on morale?

Dr. BUCKIUS. That's a very difficult question for me to answer. I have heard of a few complaints, really very few though, by the career federal employees regarding their interactions with the IPAs. They also gain a lot, too, right? If I'm a federal employee running a program, and I have an IPA that comes in and runs a similar program, I get to exchange creative ideas where the IPA can bring to the forefront ideas where I might not have that experience. Even individual, at the one-on-one kind of levels, there's a lot to be gained.

Regarding the executive service, I think you're accurate. I think that the percentage of IPAs in our most senior leadership positions is larger than the overall fraction of IPAs in the agency. We do, though, have a number of federal employees that end up being our Division Directors, as well as our office heads, and so it's not that it's closed out; it's just that it's not as probable.

Typically, though, I noted a couple of comments that IPAs don't bring the federal experience to these leadership roles. That's a true statement, but they bring a lot of leadership. We have folks that have led major departments, led major colleges, in the case of engineering, around this country. They have a lot of leadership skills. They just might have to get a little more fine-tuned on the federal issues. But by and large I think they're really superb leaders.

Mr. BEYER. You jumped ahead to another question I had, which is what necessarily makes a great scientist a great manager because I don't see them as equivalent at all.

Dr. BUCKIUS. I think you're right, and I'll agree with that. There are some scientists, and engineers, who probably shouldn't be leaders. They're much better doing the fundamental research and leading students. Then there are those that actually have a very strong research portfolio, and they also are very good leaders. In the case I just referred to we have deans and department heads who are leading major, major units around this country who come to NSF and impart that leadership ability into the agency, and I think it's really valuable.

Mr. BEYER. Doctor, let me get to what seems to me perhaps the most existential question here, and forgive me for misinterpreting this. How much of the dependence on IPAs with the associated problems and benefits is—or let's just say overdependence on IPAs is because we in Congress don't authorize enough money for long-term federal staff, and therefore, you have to take resources out of

the research budget to fund the IPAs? And what if we had—if we committed more money to the full-time government service, you know, say, a 50/50 ratio or whatever it is, would we be able to have more money for the research that then does so much good things?

Dr. BUCKIUS. Well, so that—

Mr. BEYER. Is this—are IPAs a back way of avoiding what decisions we make in our Budget Committee?

Dr. BUCKIUS. My answer to that would be no. Regardless of where you tell us to put the money for an IPA, we would still think that they're essential and we would still hire them and recruit them the way we do now, regardless of where the money comes from for the reasons I've just stated. Because of the nature of this agency, because of the fact that we don't have these large facilities doing fundamental research, we need this infusion of folks. We take it out of R&RA. If it was in AOAM, I have no input on that because we still would need those folks in the agency in order to be able to make us have the impact that we're having.

Mr. BEYER. Okay. Thank you, Doctor.

I yield back, Mr. Chairman.

Chairman LOUDERMILK. Thank you, Mr. Beyer.

The Chair now recognizes Mr. Posey for five minutes.

Mr. POSEY. Thank you, Mr. Chairman.

Dr. Buckius, can you describe in one sentence the rotators or the IPA employee—I mean would you call them like rental experts that you bring in, just the shortest possible description for me.

Dr. BUCKIUS. Of what they do or who they are?

Mr. POSEY. Both.

Dr. BUCKIUS. Okay. They're typically leaders and scholars from around the country and they provide two things for us. They provide an infusion of new, creative, leading-edge thought, as well as function to perform some of the functions—

Mr. POSEY. Okay. But—so they're part-timers you bring on?

Dr. BUCKIUS. No, they're full-time employees for a short period of time.

Mr. POSEY. For a short period of time, okay. Can you give me an example of one or two of them that you think are especially valuable in what they do?

Dr. BUCKIUS. Let me be personal because I've done all—so I've been a program person—

Mr. POSEY. No, not you. Give me another one. Use another one.

Dr. BUCKIUS. Good, because I don't like to talk about myself. In the case of one of our leaders who comes from a major institution, was a dean, leads one of our major directorates, has moved that directorate into different areas that weren't before, hasn't even taken employees—

Mr. POSEY. Okay. That's satiric platitudes. Anything really specific you can tell me?

Dr. BUCKIUS. I think we're looking for leadership and that's leadership.

Mr. POSEY. Well, you can say that about anybody. In March 2013 it was stated that the NSF paid 54 IPAs' salaries exceeding the federal executive pay limit of almost \$180,000, which is about probably five times the average annual wage in my district, which is the highest salary earned by federal employees at NSF, including

presidential appointees. Of these 54 IPAs, the NSF paid 34 a salary of over \$200,000 in annual salary and over \$300,000 to an Assistant Director. Do you believe that was appropriate compensation?

Dr. BUCKIUS. Yes, I do.

Mr. POSEY. Okay. What procedures does NSF have in place to properly assess the cost-to-benefit ratio of these high-dollar rental people or temporary people?

Dr. BUCKIUS. NSF over the years has done a number of independent studies by various organizations. NAPA, OPM, GAO have all done assessments of our program and they have recommended changes, just like Ms. Lerner has recommended. At the same time, they've given very positive remarks about the program.

Mr. POSEY. Okay. Fifty-four IPAs earned a salary over the federal executive pay limit. Do you believe that's fair to the NSF's own employees who cannot receive compensation that exceeds a pay grade of almost \$180,000?

Dr. BUCKIUS. Remember the reason why we bring them. We bring them to do function, and we bring them to do leadership in forefront activities—

Mr. POSEY. I know. They have talent that your own people don't have presumably.

Dr. BUCKIUS. No, they have different talents.

Mr. POSEY. Oh, okay. I was surprised to find Ms. Lerner's revelation that the temporary employees you bring in are responsible for making award funding decisions. Can you tell me if any of them had any hand in awarding these grants: 340,000 to study human-set fires in New Zealand in the 1980s; 227,000 to study pictures of animals in National Geographic magazine; \$200,000 to study Turkey's failing fashion industry; 1.5 million to study pasture management in Mongolia; 50,000 to study civil lawsuits in Peru in 1600 to 1700; 200,000 to study gender bias in Wikipedia pages; 164,000 to study Chinese immigration in Italy; 170,000 for two studies of native people's basket weaving in Alaska; 487,000 to study textiles and gender in Iceland from 874 to 1800, the Viking Era; 136,000 to repatriate recordings of traditional Alaskan music from the 1940s; \$50,000 for stem cell education in Sri Lanka; 15,000 to study gender and fishing practices at Lake Victoria, Africa; 147,000 to study international marriages between France and Madagascar? And, you know, I have pages here, but can you tell me if any of these temporary employees were responsible for funding any of those projects absolutely unequivocally yes or no?

Dr. BUCKIUS. I cannot tell you who has funded those but we surely can get you that information, whether they're federal employees or rotators.

Mr. POSEY. But they would have—rotators would have responsibility to fund crap like this, right? I mean—

Dr. BUCKIUS. Rotators—

Mr. POSEY. —projects like this, excuse me. I'm sorry.

Dr. BUCKIUS. —could fund projects like that, yes.

Mr. POSEY. Thank you. I see my time is up, Mr. Chairman. I yield back.

Chairman LOUDERMILK. Thank you, Mr. Posey.

The Chair now recognizes Mr. Lipinski.

Mr. LIPINSKI. Thank you, Mr. Chairman.

Yeah, I certainly agree, Dr. Buckius, that the rotator program is an essential element of the NSF mission, as you stated, and I have to say it's a little surprising to me to hear such strong Republican support for federal employees, as we've heard here, but welcome that.

But I think the Rotator Program is very important. But—and I've been a defender of it, and when there have been issues that have come up, I've defended it. But there are issues that need to be dealt with here. And I wanted to ask about a couple of the IG recommendations that have not been—my understanding is that NSF has not followed through on the recommendations. And these two are, first of all, that the IG recommended the NSF appoint a single individual to help champion NSF Rotator Program, would also help improve NSF oversight of the program. The second one is the IG recommended that the NSF produce formal guidelines on travel and possible telework for those engaged in the IR/D program. Could you address why NSF has not followed through on either of those recommendations?

Dr. BUCKIUS. The first one regarding an individual, I cannot really answer that question. As I said, I came in October and I don't know what the practices were before then. I think it's a very good recommendation. I see no reason why we shouldn't do that.

On the telework issue, we are starting to implement that. I'm not confident it's going to see the significant cost-savings that it's been purported to. I think we have to run the experiment and see if this actually plays out.

The main issue that was brought up was regarding cost-share. We ask every IPA when they are working on their contract if they will cost-share, and some can and some do not. Part of the problem I think is with a lot of the public institutions around the country now who are not seeing the budgets that they saw before, and therefore, providing cost-share for these kinds of activities is becoming harder and harder. That's a worry from the point of view of cost savings.

Mr. LIPINSKI. Okay. And I was going to ask this the other—two questions the other way around. I wanted to make sure you had an opportunity to answer those two.

Ms. Lerner, can you just mention some of the things very briefly—now, you had discussed some of these. What has the NSF recommendations—have they implemented in a way that you think has been very responsive and helpful to the Rotator Program?

Ms. LERNER. I think NSF has done a fantastic job of implementing the recommendations that we made with respect to the IR/D program. And we made recommendations initially out of a Management Implication Report and NSF set up an IR/D task group. We also did a further audit, made additional recommendations, and NSF has been tremendously responsive. When we did our audit, they had no idea how much money they were spending on the IR/D program and they didn't know how much time people were charging. They now have codes to track both of those things. There's an annual report on costs associated with the IR/D program that they've provided in 2013/2014, and I'm sure they will in

2015, so there's much more oversight of the program that's taking place.

They have provided more training for people who are using the program and who are approving the proposals for people who want to participate in the programs so there is a better understanding of how that is working. So I think in that area in particular you've seen a great way that the agency can respond to concerns that the IG has raised and take them to the next level.

Mr. LIPINSKI. And not to diminish any of your recommendations, but what do you think are the most important ones that NSF still needs to follow up on?

Ms. LERNER. I think certainly taking more concrete actions with respect to the recommendations that we made about the cost of rotators would be quite important.

What we recognized is that there are a large number of rotators who are not the senior managers and so it seems like after an initial period for them to get used to the Foundation, there are real opportunities to use telework more robustly, especially with all of the technical tools that we have and the ability to run virtual panels as well. So, I really would like to see more action with respect to that recommendation.

And on the cost-sharing, I mean certainly we recommend—as people are asked about whether they want to cost-share but we did not see, when we did our audit work—much in the way of negotiation. So it would be helpful if they document that they had outlined the benefits and that made it easier for them to really negotiate what was finalized.

Mr. LIPINSKI. Thank you. I yield back.

Chairman LOUDERMILK. All right. Here's the posture we're in right now. Votes obviously have been called. We only have two other Members who are here to ask questions. And what I propose is if each Member would keep their questions to less than five minutes and if the witnesses would be succinct and concise with their answers, we could go ahead and finish out. Otherwise—that way we wouldn't have to hold you over until after votes if that works with everyone.

All right. So at this point the Chair recognizes Mr. Westerman.

Mr. WESTERMAN. Thank you, Mr. Chair, and I'll talk fast for a guy from Arkansas.

Ms. Lerner, your most recent report focused on an IPA conflict of interest at the NSF and found that NSF failed to develop a clear plan to manage and mitigate the IPA's known conflict of interest from the outset. Is it true that it took months for the IPA to meet with their division conflicts official to discuss how to handle the conflict of interest?

Ms. LERNER. That's what we were informed.

Mr. WESTERMAN. So given the seriousness of conflict of interest and those type of issues, have you found that this kind of delay is commonplace at NSF based on your work?

Ms. LERNER. We haven't looked broadly to see if this issue is recurring. That's certainly something that I think we want to talk with the agency about what we do moving forward to determine the breadth of these issues.

Mr. WESTERMAN. Do you believe proper procedures are in place to mitigate this kind of issue in the future?

Ms. LERNER. If I did, we would not have made the recommendations that we did. I think what we identified are real opportunities to tighten controls so that it's clearer to everybody that when these people come on, there needs to be prompt action to train them, to identify the conflicts, and to make sure that there's a plan in place to manage them.

Mr. WESTERMAN. Okay. So from your work when you investigated an IPA at the NSF you found that it had clear conflicts of interest present and they ultimately contributed to the awarding of three grants that you found did not meet the merits consistent with standard NSF practices. That is correct?

Ms. LERNER. It wasn't our determination. It was the determination of—the reviewers that raised questions about that process, yes.

Mr. WESTERMAN. So what were the total dollar figures of those grants?

Ms. LERNER. I believe total they came to about \$2 million but I'd have to get back to you with the precise number.

Mr. WESTERMAN. Are they still open?

Ms. LERNER. They are still open and as of the end of May there was about \$400,000 remaining on those three awards.

Mr. WESTERMAN. Okay. So one of the more startling observations made in your testimony is about how a rotator violated a one-year ban when applying for \$14 million in NSF funding and how it appears that someone within the agency tried to cover that person's tracks by creating a different ID number for that person. Do you think that this is an isolated incident with one person knowingly and willfully ignoring government ethics rules or do you have concerns that ethics violations are more widespread?

Ms. LERNER. I certainly hope that this particular creation of a second PI ID is isolated, and I don't have evidence to show that that is a widespread problem, but what we also found is it would be very difficult for us to tell if who was doing that. So that is—certainly is a matter of concern for us.

Mr. WESTERMAN. So do you think that a single person overseeing all of NSF's rotating personnel might do a better job in ensuring compliance with government ethics laws?

Ms. LERNER. A single person overseeing? I think that having one person with broad responsibility to look at the use of rotators and to ensure that they are being appropriately trained and sensitive to the issues of conflicts would help. Right now, the management is very diffuse and that makes it difficult to ensure accountability.

Chairman LOUDERMILK. In the interest of time so we have one more Member, is it all right if we—

Mr. WESTERMAN. I'll yield back, Mr. Chairman.

Chairman LOUDERMILK. Okay.

Mr. WESTERMAN. Thank you.

Chairman LOUDERMILK. Thank you, Mr. Westerman.

The Chair recognizes Mr. Tonko.

Mr. TONKO. Thank you, Mr. Chair.

While NSF's system is by no means perfect, I'm concerned by the majority's continued fixation with NSF's peer-review process, which

in large part relies on IPAs. Like any organization, NSF's process—processes have room for improvement.

In response to past IG reports, NSF has taken concrete steps to improve its practices. It is likely that similar steps will be taken in response to the most recent report. However, based on what I have read, these reports are not signs of systemic problems that require dramatic changes to the overall structure of the Rotator Program. In fact, the costs at NSF has agreed to incur, which are associated with the Rotator Program, in part show how highly NSF values IPAs.

The NSF and our system of university-based research is the envy of the rest of the world. NSF's model for funding has made this program the premier university-based scientific research program. And although we all want to limit costs and be accountable, certainly when it makes sense we should be careful and weigh the savings against any possible reduction in associated benefits.

Now, Dr. Buckius, in regard to the last series of questions, I'm assuming you might have a response. Instead of going with my questions, I'll give you the time that I have remaining to perhaps respond to that earlier series of questions.

Dr. BUCKIUS. Thank you. I appreciate that. Conflicts of interest are taken very seriously at the National Science Foundation. This is one case. This is one individual. That individual was recommended for termination and that appointment was not renewed by NSF. Remember also NSF is the one that discovered this and told the IG, which subsequently investigated it. We also then took two of our staff that have been talked about and administratively removed them in accordance with established procedures and applicable regulations. We proceeded very deliberately in this case.

I've been at NSF, like I said, the last six months. I was here four years before. This is the only case I have heard of. I did a couple of checks around the agency. We found one person who knew of one other case.

The point I'm trying to make is conflicts of interest are taken very, very seriously. We can improve. Definitely we can improve and we will try, but this is just one case. I think we've tried to handle it the best way we possibly can. It's not acceptable what happened. We're not accepting what the IPA did, nor are we accepting what the two NSF staff members did, and we're trying to manage that one particular case very, very carefully.

The 10 or so recommendations that the IG provided us on Friday—I got them Friday afternoon—and I've had a chance to review them. We will definitely try to meet all of those recommendations as best we possibly can.

Mr. TONKO. Can I get another question in or are we ready to close?

Chairman LOUDERMILK. It looks like we're going to need to close. We're running out of time quickly to get to the Floor to vote so—

Mr. TONKO. Thank you. Thank you, Mr. Chairman.

Chairman LOUDERMILK. Thank you, Mr. Tonko.

Again, I thank the witnesses for their testimony and Members for their questions. I would like to enter into—enter the following documents into the record for the 2010 IG report, the 2012 IG report, the 2013 IG report, and the June 2015 redacted IG report.

Without objection, so ordered.

[The information appears in Appendix II]

Chairman LOUDERMILK. And I'll also add Chairman Smith's opening statement.

Without objection, so ordered.

[The prepared statement of Chairman Smith appears in Appendix II]

Chairman LOUDERMILK. The record will remain open for two weeks for additional written comments and written questions for the Members. The hearing is hereby adjourned. Thank you.

[Whereupon, at 10:26 a.m., the Subcommittees were adjourned.]

Appendix I

ANSWERS TO POST-HEARING QUESTIONS

ANSWERS TO POST-HEARING QUESTIONS

Responses by Dr. Richard Buckius

HOUSE COMMITTEE ON SCIENCE, SPACE, and TECHNOLOGY
SUBCOMMITTEE ON OVERSIGHT
SUBCOMMITTEE ON RESEARCH AND TECHNOLOGY

Is NSF Properly Managing Its Rotating Staff?
Thursday, June 25, 2015

QUESTIONS FOR THE RECORD

**Questions submitted by Oversight Subcommittee Chairman Barry Loudermilk and
Research and Technology Chairwoman Barbara Comstock**

1. NSF matches the IPA salaries and fringe benefits they were making at their home institutions, and also reimburses them for travel, temporary living expenses, lost consulting income and state income taxes. The IG's March 20, 2013 report found that at the time, the annual **additional** costs for NSF's then 184 IPAs was over 6.7 million, or roughly \$36,000 per IPA.
 - a. What is the 2014 or current annual costs related to all IPAs?

Budget Line Item	-2012-	-2013-	-2014-
IPA Compensation	\$35,140,000	\$36,197,000	\$35,616,381
IPA Lost Consult & Per Diem	\$4,005,000	\$4,040,000	\$3,826,488
IPA Travel	\$3,487,000	\$2,635,000	\$2,785,787
Grand Total	\$42,632,000	\$42,872,000	\$42,228,656

Note that these values include all costs associated with all the IPAs and not simply the additional costs for IPAs over equivalent federal employees.

2. The March 20, 2013 IG report stated that the IPA rotator program is mutually beneficial to the NSF, the home institution, and the individual. If that is the case, why is the NSF fronting most of the additional costs associated with IPAs?

OPM guidance on managing IPA activities indicates that, "Cost-sharing arrangements should be based on the extent to which the participating organizations benefit from the assignment. The larger share of the costs should be absorbed by the organization which benefits most from the assignment." NSF clearly has the most tangible benefit as IPAs are performing work and bringing their expertise and experience to NSF.

NSF requests cost sharing from the home institutions in all cases. By working side-by-side with NSF's permanent workforce, IPAs learn about NSF and how we use our resources to review and process tens of thousands of grant proposals. Consequently when the IPA returns to his/her home institution, knowledge of NSF policies and practices is transferred more effectively to that home institution.

Yet this service often requires sacrifices on the part of the IPA and the institution. The IPA's home institution does not have access to that faculty member's contributions to all of the unit

functions. Therefore, to maintain a vibrant IPA program, it is important avoid negative impacts on the rotator who chooses to engage in public service and the institution that allows that choice.

- a. Does the NSF negotiate with the IPA's home institution to share more than 15 percent of the associated costs?
On occasion NSF negotiates more than 15 percent cost-sharing. The agency fully embraces negotiating cost-sharing with an institution that is willing and able to do so.
- b. Under what circumstances does this usually take place?
The circumstances where NSF might negotiate more than 15 percent cost-sharing would be when an assignee's salary and fringe benefits are exceptionally costly.

3. Are the benefits the NSF receives from hiring IPAs who make over the federal executive pay limit proportionate to the costs associated with those employees?

Yes. NSF directorates and offices make preliminary decisions on IPA hires based on the scientific and/or managerial requirement of the position and the candidates' qualifications. They then need to make a determination about the cost and their ability to manage those costs within the budget allocated for funding IPA assignments. If the salary would exceed the federal executive pay limit and the directorate or office determines the benefit of bringing on the individual exceeds the costs, it must provide a written justification for the higher salary for approval from NSF's Deputy Director or the Director's designee.

- a. Who makes that decision?
As agreed to in response to IG Audit Report 97-2116 (Hiring Scientists in Temporary Positions), the Assistant Director or Office Head of the hiring organization must provide concurrence when the rate of NSF's contribution toward basic pay during the assignment will exceed the equivalent of the maximum annual salary for the NSF position held, based upon explicit justification from the program office addressing costs and benefits. In addition, the Deputy Director of NSF or the Director's designee must approve NSF's contribution toward the basic pay of an assignee when this funding will exceed top of the Senior Executive Service (SES) pay band.
- b. Do you approve these types of decisions?
Yes, with appropriate and sufficient justification.

4. IPAs continue to receive fringe benefits, such as retirement, health and life insurance from their home institutions. The total of these fringe benefits totaled almost \$790,000 in 2013. Dr. Buckius what are the current total fringe benefit costs at the NSF associated with IPAs?

The table below provides the total fringe benefits cost for FY12 to FY14 and FY15 through March 7, 2015, both the cost to NSF and the total amount cost-shared by the home institution. The table includes full-time 12 or 24 month assignments only; average fringe benefits rates for all three years is between 30% and 31%. Note that the \$790,000 figure in the question refers to the OIG estimate of extra fringe benefit costs NSF paid by not limiting to the percentage provided to Federal employees.

IPA - Cost Sharing of Fringe Benefits					
# of FT IPAs / Assign Length 12 or 24 months	FY12 155	FY13 145	FY14 156	FY15 (through March 7, 2015) 157	
Total Fringe Amount	\$ 7,253,592	\$ 7,020,051	\$ 7,786,628	\$	8,064,827
Total Fringe NSF Contributes	\$ 7,061,150	\$ 6,768,765	\$ 7,444,045	\$	7,700,822
Total Fringe Cost Shared	\$ 192,442	\$ 251,286	\$ 342,583	\$	364,005
% of Total Fringe Cost Shared	2.65%	3.58%	4.40%		4.51%

- a. Do costs associated with fringe benefits factor into the decision to hire particular IPAs?
The costs associated with fringe benefits are typically not a factor in the decision to hire a particular IPA, however the costs associated with fringe benefits could be a factor for the cost-sharing negotiation.
5. The March 20, 2013, IG report stated that the NSF did not know the components or costs comprising the fringe benefit package it pays for IPAs. The NSF simply reimburses the home institution for its contribution to the IPA's fringe benefit package based on percentage or dollar amount provided by the institution. What information is made available to the NSF regarding IPA fringe benefits?

NSF's practice of requesting fringe benefit information as a total dollar amount or percentage of salary without requiring a breakdown of the information was established through discussion with the Office of Inspector General (OIG) during the 2004 IG Audit of Costs Associated with Visiting Personnel (OIG Report #04-2-006). The OIG auditors and NSF agreed that if NSF added the following statement to the IPA Assignee Cost Data Sheet (the certification form completed by the home institution), it would be sufficient and no further detailed benefit information would be required:

***The statements on this form, and any attachments to it, are true, complete and correct to the best of my knowledge and belief and are made in good faith. I understand that a knowing and willful false statement on this form can be punished by fine or imprisonment or both. (See section 1001 of title 18, United States Code).*

On the advice of the IG auditors, the Division of Human Resource Management implemented this action immediately in June 2004 while the audit was still underway and as a result it was not included as a "recommended action" in the final report.

In addition, NSF explicitly excludes certain types of costs from being included in the fringe benefits computation, including tuition remission and any administrative or indirect costs. The certification also establishes that such costs are not included.

- a. Is the NSF concerned that they are covering costs they are not fully informed of?
Based on the 2004 guidance from the IG noted above, NSF is satisfied that the home institution is providing salary and benefit numbers and percentages that are accurate and consistent with allowable items.
- b. Is that practice a responsible use of taxpayer dollars?

Adding the statement to the IPA Cost Data Sheet met the IG recommendation for acceptable documentation for negotiating IPA assignments.

6. According to the IG, the NSF paid employer contributions for IPA fringe benefits at rates as high as 60 percent of the IPA's salary. To put this in context, the NSF paid its permanent employees an average fringe benefit of 26 percent. Why is the NSF paying fringe benefits at such a high rate for temporary employees?

The 60 percent fringe benefit rate was an outlier. NSF's practice is to delve further into what is included when a higher than average rate is certified by the home institution. The fringe benefits rate, as a percentage of total salary, was between 30.0% and 30.3% from FY12 to FY15 (through March 7, 2015).

- a. Has the NSF negotiated with the home institution to help pay for their fringe benefit package while the employee is an NSF IPA?

The 15% cost sharing NSF seeks is on the assignment salary and fringe benefits.

7. The NSF's Independent Research and Development program provides IPAs paid time and travel to return to their home institution and continue their research while working at the NSF. IPAs are allowed to spend up to 50 work days a year on Independent Research and Development. In 2012, 171 of the 184 IPAs participated in this program, representing 93% of the IPAs at that time. Dr. Buckius, what is the current number of IPAs participating in this Independent Research and Development Program?

NSF generates IR/D statistics on a quarterly basis. As of April 6, 2015, the most recent statistics available, 141 IPAs at NSF were participating in IRD.

- a. According to the IG in 2012, the additional cost incurred by the NSF totaled over \$1 million to allow IPAs to participate in the Independent Research and Development program. Does the home institution pay for any of these associated costs?

IPA assignees typically perform Independent Research and Development (IR/D) activities at their home institutions and the cost to NSF is transportation (air, car, etc.) and partial meal and incidental expenses on the first and last days of travel. While the home institutions do not provide dollars toward those travel expenses, they are providing support by way of laboratory space, office space, and in many instances, continuing support and guidance to students working on research activities, etc.

8. IPAs can receive household move or partial reimbursement for lodging, meals, and incidental expenses for temporarily relocating to the NSF when becoming an IPA. In 2012, 92% of IPAs came from outside of the Washington, D.C. area and opted to receive temporary living expenses. This cost the NSF approximately \$3.8 million annually. What is the current IPA relocation related costs the NSF is paying?

In FY12 through FY14 and through March of FY15, all eligible IPAs elected the annual allowance in lieu of an NSF-arranged round-trip household goods move at the beginning and completion of their assignment.

The total allowance paid by Fiscal Year to full-time, 12 or 24 month, IPA assignees is as follows:

FY12: \$3,240,701

FY13: \$3,087,108

FY14: \$3,242,428

FY15 through March 7, 2015: \$3,255,214

- a. Has there been any discussion of ways to lower the costs incurred by relocating IPAs to the NSF headquarters?

In response to the IG's March, 2013 audit report, NSF conducted a series of focus group sessions with both IPA assignees and managers of IPAs. Both Managers of IPAs and IPAs themselves unanimously agreed that it is critical for IPAs to work onsite at NSF at least through year one of their assignment. All participants cited the steep learning curve for new IPAs, noting the importance of working onsite in order to understand NSF's values and culture as well as the general environment of the Federal government. Establishing personal relationships with NSF staff and colleagues is viewed as equally critical, and deemed extremely difficult to develop without in-person social interactions. These personal interactions build trust and credibility, which directly impact an IPA's ability to effectively manage their programs. Most IPAs felt it would be difficult to learn their job remotely, as being onsite helps them understand the larger Federal context, rules and regulations, and NSF's systems and processes (including the panel process). Overall, most IPAs felt that working onsite at NSF is a truly unique experience, that would be difficult to replicate remotely.

Nevertheless, NSF continues to explore the use of both intermittent and full-time off-site IPA assignments.

9. How much time do IPAs physically need to be present at the NSF to effectively fulfill the duties of their assignments?

As noted above, NSF's view is that, at a minimum, an IPA assignee should serve on-site for year one of their IPA assignment. NSF believes that, depending on any particular assignment, after year one, remote work arrangements become somewhat more feasible. Personal relationships have been established, and the assignee better understands federal processes, rules, and regulations (i.e., conflicts-of-interests) which enables a large portion of the work to be performed remotely. Telework is also an attractive arrangement, and NSF is looking into a more expanded use of the telework for IPAs.

10. Some IPAs are placed by the NSF into managerial positions within the organization.—Dr. How many IPAs are currently in managerial positions at NSF?

On October 1, 2014 (beginning of FY15), there were 20 IPA assignees in managerial positions at the NSF. Midway through FY15 (June 8th), there were 23 IPA assignees in managerial positions.

- a. When hiring IPAs for managerial positions, what qualities do you look for and how does that process work?

NSF typically recruits vacant executive positions with all three appointment options available (SES Career, SES Limited Term and IPA assignment option). All recruitment announcements include the five government-wide Executive Core Qualification (ECQ) requirements for federal

leaders and managers, along with the position's Professional/Technical requirements. While not required, NSF also customarily submits all qualified applicants to the review/rating panel to ensure that only the most highly qualified candidates are referred to the hiring manager for the interview/selection stage of the process, regardless of the resulting appointing authority (Career/Limited Term/IPA) for bringing the selected individual to the Foundation.

11. What type of training do IPAs who become managers receive when they arrive at the NSF?

IPA managers receive extensive training as described in responses to the specific questions below. In addition, they have access to an on-line repository of management tools covering all facets of their responsibilities.

a. What does the training consist of?

There is considerable training available for IPAs in management positions. Upon arrival, these IPAs are required to complete an Executive Development Plan (EDP) which must include a minimum of 32 hours of supervisory training. In addition, all are enrolled in the next available 3-day Executive Leadership Retreat where they are introduced to the culture and realities of being a manager at NSF. We also provide the opportunity for them to select an executive coach familiar with NSF and the Federal service to help understand and deal with the demands of their position(s). As part of their required training, they are strongly encouraged to attend such courses as Federal Supervision at NSF (a new comprehensive 3-day course which covers the realities of supervising in a Federal environment with topics like Federal laws, regulations and NSF policy, labor relations, employee relations, employee development, diversity and inclusion, performance management, staffing and classification, etc.); Leadership & Problem Solving Skills (a 4-day skill-based course which teaches the interpersonal skills to deal effectively with performance problems as well as other "people" issues); The Art & Science of Picking the Right People (which teaches Federal employee selection); Maximize Your Performance Conversations; Performance Management for General Workforce supervisors, etc. There are numerous other training requirements which are met via online courses, e.g., No Fear Act, Veteran's Hiring, and Workplace Violence.

b. Is there a time period in which an IPA is required to receive proper training when joining the NSF?

Yes, the initial training must be completed within the first year as a supervisor. Thereafter, at least 16 hours of management training is required every three years -- a number which most managers far exceed.

c. Does the NSF have safeguards in place to ensure IPAs complete the necessary training?

Required training is covered in each IPA's Executive Development Plan, and it is the responsibility of their immediate supervisor to ensure they complete the training requirements. Training is also tracked in NSF's Learning Management System, and reports are available to managers which show training completion data.

d. In the recent 2015 IG report, one IPA was able to delay receiving proper ethics training for more than a year. Is this acceptable?

No, this is not acceptable. NSF takes ethics training requirements seriously. The NSF electronic financial disclosure filing system now tracks training dates for NSF program officers,

including IPAs. Supervisors can access this information and are expected to follow up with subordinates who fail to attend training.

12. Many of these IPAs lack the experience of managing in a federal program. Could you please describe the struggles that the NSF's IPAs face when transitioning to the NSF's managerial positions.

Since many of the IPAs have significant managerial experience, the greatest challenge for most IPA managers is adapting to Federal practices, which may be quite different from what they have experienced in the academic sector.

- a. What resources are available for IPAs who request or require assistance and direction when placed in a NSF managerial position?

Recognizing that their previous academic environments are very different from a Federal environment, we provide considerable support. There are extensive on-line resources providing information on all aspects of their responsibilities. We also provide the opportunity to work with an executive coach familiar with both NSF and Federal management. They also attend the Executive Leadership Retreat where they learn about NSF's culture and the Federal environment and have an opportunity to interact with and learn from seasoned executives with long years of experience at NSF. The new Federal Supervision at NSF course gives them a very clear and detailed view of how to manage effectively in the Federal sector. Similarly, Leadership & Problem Solving Skills and The Art & Science of Picking the Right People give them hands-on skills for performing their jobs effectively and making effective hiring decisions within Federal hiring constraints. Our performance management courses are also specific to NSF's performance management systems and enable new IPAs to have effective performance conversations and to manage performance within Federal guidelines. Finally, all IPAs have access to career Federal Senior Executive Service members for on-going advice and guidance based on their extended experience with NSF and Federal policies and practices.

13. How many IPAs in managerial positions participate in the Independent Research and Development program?

In the April 6, 2015 quarterly report, 19 participants in the IR/D program were IPA assignees serving in managerial positions.

- a. How are their managerial responsibilities impacted when they are absent for up to 50 days of the year through the Independent Research and Development program?

IPAs who supervise employees at NSF manage their staff while they participate in the IR/D program just as they, and permanent Federal executives, manage their staff while they perform programmatic oversight and planning, attend scientific conferences, or travel to meetings at academic and research institutions. (Note that Permanent Federal managers are also eligible to participate in the IR/D program and do so.) All managers juggle a multitude of responsibilities, many of which take them outside of the office. NSF provides managers (including IPAs) and staff with equipment such as laptops and mobile devices which allow managers to effectively and efficiently provide oversight and direction and otherwise communicate with staff when out of the office. In addition, directorates and divisions plan IR/D days with an aim to ensure appropriate managerial coverage. For example, a Deputy Division Director typically will be in the office managing day to day operations when a Division

Director is out of the office, for whatever reason. Finally, most IPAs only use a fraction of their planned IR/D days, and quite a few use none of their requested days, as they work to ensure they perform their NSF duties responsibly while also balancing their other endeavors, such as their research interests under their IR/D plans.

Appendix II

ADDITIONAL MATERIAL FOR THE RECORD

STATEMENT SUBMITTED BY FULL COMMITTEE CHAIRMAN
LAMAR S. SMITH

Thank you Chairman Loudermilk for holding this hearing. And I thank the witnesses for being here to share their expertise.

The National Science Foundation (NSF) plays an important part in ensuring that America remains on the cutting edge of science and a world leader in scientific research.

It is important that the Science Committee conducts robust oversight of the NSF to ensure that the American people's tax dollars are used in the nation's best interest.

This morning's hearing will focus on the NSF's use of what is referred to as the "Rotators Program."

This program allows the NSF and other science agencies to have external researchers and educators come into the NSF on a temporary basis. These individuals use their expertise to help ensure that the NSF continues to pursue high quality research.

Nearly 1/3 of NSF program officers are rotators, so oversight of this program is essential given the influence these nonpermanent government employees have on the NSF's overall mission. These researchers and educators are "on loan" from institutions that likely had, currently have, or will have grants from the NSF. It is paramount that caution is used to avoid even the appearance of impropriety or bias.

We should ensure that hard-earned tax dollars are being used appropriately. This is not the government's money, it's the people's money. This is even more troubling since the cost of an average rotator is \$36,000 more than the average permanent federal employee.

The costs associated with these rotators become difficult to justify when the Committee discovers that, as described in an Inspector General report from this month, one of these rotators inappropriately approved grants for her home institution.

These types of quid pro quo arrangements undermine the credibility of both the NSF's ability to properly manage the rotator program, as well as the institutions who seek grants from the NSF.

Conflicts of interest are serious matters and are typically dealt with severely. I know the incident described in the IG report took place before Dr. France Córdova became the Director of NSF. However, I am still concerned about the apparent lack of safeguards in place to ensure that this type of behavior does not continue in the future.

I hope the witnesses today will explain where the NSF's oversight procedures in place broke down and allowed this to occur.

I look forward to hearing about the Inspector General's recommendations for how to improve the oversight of this program and how to prevent this from occurring again in the future. I also am interested to learn from the NSF what their timeline is for implementing these recommendations.

Unfortunately, if it becomes apparent that the NSF is not capable of handling this type of program, then maybe we should consider legislation that limits the use of rotators moving forward. Thank you Mr. Chairman and I yield back.

STATEMENT SUBMITTED BY FULL COMMITTEE RANKING MEMBER
EDDIE BERNICE JOHNSON

Good morning. I want to thank the Oversight and Research & Technology Subcommittee Chairmen and Ranking Members for holding this hearing, and I also want to thank the witnesses for their testimony.

I want to echo the comments of Ranking Members Beyer and Lipinski regarding the value of the Rotator program at NSF, and also the need to strengthen policies when mistakes are made and potential management weaknesses are identified. In a series of recent reports, the Inspector General has uncovered some areas where the agency needs to implement additional controls. I encourage the agency to address the IG's recommendations expeditiously.

NSF's gold-standard merit-review system is not the subject of this morning's hearing. However, it is the subtext of the most recent report from the IG's office. So let me take this opportunity to reiterate my confidence in the strength and integrity of NSF's merit-review policies and processes. NSF funds 11,000 grants per year. In the case we are hearing about today, in which a problem did arise, the problem was quickly identified and addressed by agency staff. We should take that as good news.

Let me also reiterate my confidence in the dedication and integrity of NSF's staff, both the federal employees, and those scientists and engineers to come to the agency for a temporary appointment as rotators. NSF's exemplary staff make the agency and its merit-review system the envy of governments and scientists across the world.

Today's hearing raises several legitimate oversight issues. I hope that this Committee will use this hearing as an opportunity to learn from these two esteemed witnesses about what can be done better so that even rare incidents, such as the one NSF found and the IG has now reported upon, can be avoided in the future.

With that I yield back.

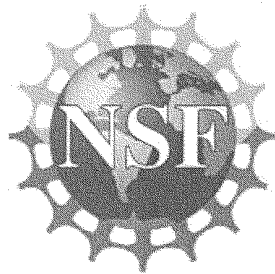
REPORT SUBMITTED BY REPRESENTATIVE BARRY LOUDERMILK

Audit of NSF's Workforce Management: Rotating Director Model

National Science Foundation
Office of Inspector General

March 30, 2010

OIG 10-2-009





National Science Foundation • 4201 Wilson Boulevard • Arlington, Virginia 22230
Office of the Inspector General

MEMORANDUM

DATE: March 30, 2010

TO: Dr. Cora B. Marrett
Acting Deputy Director, National Science Foundation

FROM: James Noeth /s/
Acting Associate Inspector General for Audit

SUBJECT: *Audit of NSF's Workforce Management: Rotating Director Model*, Report
Number 10-2-009

Attached please find the final report of our audit of NSF's rotating director model. We have included NSF's response as an appendix to the final report.

OMB Circular A-50 requires NSF to prepare a time-phased corrective action plan to address the report recommendations. Please furnish our office with a copy of this corrective action plan no later than May 31, 2010.

We appreciate the courtesies and assistance provided by so many NSF staff during the audit. If you have any questions, please contact Karen Scott, Senior Audit Manager, at (703) 292-7966.

Attachment

cc: Allison Lerner
Anthony Arnolte
Judith Sunley
Deborah Crawford
James Lightbourne
Joseph Burt
Pam Hammett
Karen Scott
Susan Carnohan
Kelly Stefanko
Gina Zdanowicz

Executive Summary

To maintain a world-class scientific workforce, the National Science Foundation (NSF) supplements its permanent, career employees with a variety of non-permanent staff. All of the non-permanent appointments are federal employees, except for Intergovernmental Personnel Act (IPA) assignments, who remain employees of their home institution. At the time of our audit, "rotating directors", in the form of IPA assignees, filled over a quarter of NSF's executive-level, science positions.

The Senate Committee Report accompanying NSF's 2010 appropriations bill expressed "deep concern" with systemic workforce management issues at NSF. While noting the benefits of NSF's rotational director model in bringing the agency fresh scientific insight and perspective, the report also cited its potential for creating gaps in management oversight.

Purpose

The Senate Committee Report accompanying NSF's 2010 appropriations bill requested that the OIG provide a report assessing NSF's rotating director model. Accordingly, the objective of this audit was to determine if NSF has a rotator model in place that ensures effective personnel-management performance and oversight at its executive level.

Results in Brief

Based on our limited assessment, we found that NSF generally has the components of an effective personnel management system and followed Office of Personnel Management and government-wide requirements. Nothing came to our attention to indicate that NSF's personnel management system was ineffective. With the exception of performance management, NSF applied the components of effective personnel management to both its permanent and temporary staff and IPAs in the same manner.

However, differences exist in NSF's management of various appointments at the executive level. Specifically, NSF does not include IPAs in its formal performance management system even though they function in the same capacities as NSF's federal executives. Additionally, we noted that IPAs may not have prior working knowledge of the federal government culture or of federal government management processes because they are rotating into NSF from universities and other institutions.

As a result, NSF's rotating director model presents challenges to effective personnel-management performance and oversight. Because IPAs do not have a written record of performance, NSF risks not holding them accountable, as it

does its federal employees, in accomplishing NSF's mission and goals. Also, the fact that IPAs do not always have prior knowledge of, or experience with, the federal workplace culture or federal government management processes gives them a steep learning curve when they arrive at NSF.

NSF takes some steps to mitigate these risks; however, NSF could do more to address the challenges associated with the rotating director model. NSF should require that IPAs, at all levels, be included in the performance management system, in an appropriate manner. In addition, NSF should ensure that it is capable of effectively preparing and integrating its rotating executives into the federal government workplace.

Recommendations

NSF recognizes the challenges to effective personnel management involved in having a rotating workforce and is committed to improving its human capital management. We recommend that the NSF Director:

1. Create and document a performance management process appropriate for IPAs. Such a process does not have to be the same as the process for federal employees but should include:
 - o establishing a formal performance assessment policy and practice that requires annual performance assessments for IPAs and some form of documentation that the assessments occurred;
 - o developing IPA performance standards for both program-level and executive-level IPAs;
 - o ensuring that each new IPA agreement includes an attached set of performance standards;
 - o ensuring that supervisors of IPAs understand their responsibility to conduct annual appraisal discussions with all IPA assignees; and
 - o ensuring that each new IPA agreement contains sufficient detail to convey expectations of the position.
2. Ensure that NSF continues its efforts to implement an appropriate process for integrating new executives into the agency sufficient to orient IPAs with unfamiliar management processes.

Agency Response

NSF agreed with our recommendations and in its response, indicated that it has already taken steps towards developing and implementing a performance management process for all IPAs similar to that for federal employees.

Table of Contents

Executive Summary	i
Introduction	1
Results of Audit	7
NSF Generally has the Components of an Effective Personnel Management System	10
NSF Does Not Include Rotating Executives in its Performance Management System	11
Rotating Executives Generally Do Not Have a Working Knowledge of Federal Government Culture and Management Processes	13
Recommendations	14
Agency Response	15
OIG Contact and Staff Acknowledgements	15
Appendices	
Appendix A: Agency Response	16
Appendix B: Objective, Scope, and Methodology	17
Appendix C: Illustration of NSF's Executive-Level Science Workforce	19
Appendix D: Assessments of NSF's Use of Rotators	20
Appendix E: Personnel Management Scholarship	22

Introduction

The Senate Committee Report accompanying the National Science Foundation's (NSF) 2010 appropriations bill¹ expressed "deep concern" with systemic workforce management issues at NSF. The report stated that "compounding the issue is the rotational director model, which although [it] brings fresh scientific insight and perspective to the agency, creates gaps in management oversight." Accordingly, the report requested that the NSF OIG provide an assessment of NSF's rotating director model.

Mission of the National Science Foundation

The National Science Foundation is an independent federal agency whose mission is "to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense." To support this mission, NSF funds approximately 20 percent of all federally-supported basic research conducted at the nation's colleges and universities, primarily through grants and cooperative agreements. To accomplish this mission, NSF seeks to maintain a world-class staff of scientists, engineers, and educators who bring current knowledge, insight, and cutting-edge perspectives to the scientific and engineering research and education funded by NSF.

NSF's Organizational Structure

NSF is headed by a Director and Deputy Director who are appointed by the President. The Director serves a six-year term, and the Deputy Director serves at the pleasure of the President.

NSF is divided into seven directorates that support science and engineering research and education: Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Engineering (ENG), Geosciences (GEO), Mathematics and Physical Sciences (MPS), Social, Behavioral and Economic Sciences (SBE), and Education and Human Resources (EHR). Each directorate is headed by an executive level Assistant Director and Deputy Assistant Director or equivalent, and a primary responsibility of the Assistant Directors is to provide leadership and direction to their respective directorates. Assistant Directors are also responsible for planning and implementing programs, priorities, and policy within the framework of statutory and National Science Board authority.

Each directorate consists of a number of divisions, which are headed by a Division Director, and most are supported by a Deputy Division Director or equivalent. A primary responsibility of Division Directors is to provide leadership

¹ Senate Committee on Appropriations Report accompanying the Departments of Commerce and Justice, and Science, and Related Agencies Appropriations Bill, 2010.

and guidance to division scientific, technical, and administrative staff. Division Directors also determine funding requirements, prepare and justify budget estimates, balance program needs, allocate resources, oversee the evaluation of proposals, make recommendations for awards and declinations, and represent NSF to relevant external groups.

Four science offices within NSF's Office of the Director also directly support research: the Office of Polar Programs (OPP), the Office of Integrative Activities (OIA), the Office of International Science and Engineering (OISE), and the Office of Cyberinfrastructure (OCI). Each science office is headed by an Office Director. Other offices within the Office of the Director support business operations, such as information and resource management, legal affairs, and financial management.

NSF's Use of Non-Permanent Staff

To maintain a world-class scientific workforce, NSF relies on authority provided in the National Science Foundation Act of 1950 (the Act). Specifically, the Act gives the NSF Director the authority to, "in accordance with such policies as the Board chooses to prescribe, appoint for a limited term or on a temporary basis, scientists, engineers, and other technical and professional personnel on leave of absence from academic, industrial, or research institutions." With this authority, NSF supplements its permanent, career employees with a variety of non-permanent staff such as temporary (limited term),² intermittent (experts or consultants), and two rotating appointment types – Visiting Scientists, Engineers, and Educators (VSEE) and Intergovernmental Personnel Act (IPA). All of the non-permanent appointments result in federal employees, except for IPAs, who remain employees of their home institution.

Temporary Appointments

Temporary employees are limited-term appointments, usually for a period of up to three years. NSF uses temporaries throughout the agency. For example, it uses temporary appointments to bring in non-permanent executives, such as limited-term Senior Executive Service (SES) Division Directors. In addition to the executives, some Program Officer positions are filled through temporary appointments. Temporary employees were seven percent of NSF's total workforce at the time of our audit.³

² Limited-term appointments may be filled with permanent, career employees. Because the appointment was temporary, we included those staff as non-permanent.

³ Directorates, OPP, OCI, and OISE data as of 9/11/09, non-science offices and OIA data as of 10/23/09

Intermittent Appointments

Intermittent appointments are another form of non-permanent appointment used by NSF. Intermittent employees act as experts or consultants and may be appointed for a full year; however, they cannot work more than 130 days a year. At the time of our audit, intermittent employees comprised four percent of NSF's total workforce.

Rotator Program Appointments

The federal government's Intergovernmental Personnel Act Mobility Program and NSF's Program for Visiting Scientists, Engineers and Educators are known as "rotator" programs, and are NSF's primary vehicles for employing temporary professional scientists, engineers, and educators.

Visiting Scientists, Engineers, and Educators – VSEEs are temporary employees appointed for a period of one year, with an option to extend the appointment for an additional year. Because they are temporary federal employees, NSF pays their salaries directly through its Salaries and Expenses appropriation, although VSEEs continue to receive their benefits through their home organizations.

At the time of the audit, VSEEs made up four percent of NSF's total workforce. Most were Program Directors in the directorates and science offices with non-supervisory responsibilities that include managing an effective and timely merit review process and establishing goals and objectives for research programs.

Intergovernmental Personnel Act Appointments – At NSF, IPAs are usually scientists, engineers, and educators on loan from their home institutions. The Intergovernmental Personnel Act of 1970 allows the temporary assignment of personnel between federal agencies and other governmental, academic, tribal, and eligible non-profit organizations. The Act permits individuals to serve in a temporary capacity for a period of up to four years. Consistent with the intent of the Act, IPA assignments can strengthen management, assist in the transfer and implementation of new technology, involve officials of other organizations in developing and implementing federal policies and programs, and enhance the professional abilities of the participants. Most IPAs return to their home institutions following their tour of duty bringing with them their newly acquired knowledge of how NSF functions.

While IPAs remain employees of their home institutions, they are considered employees of the borrowing agencies for virtually all purposes including limitations on political activities and outside earned income, and financial disclosure and conflict of interest requirements.

At the time of our audit, IPAs were 12 percent of NSF's total workforce and of the 229 rotators at NSF, 174, or 76 percent, were IPAs. However, it is significant to note that IPAs are the only NSF executives that are not federal employees, and out of a total of 75 *executive-level* science staff at the agency, 20 were rotating

directors. Six IPAs were Assistant/Science Office Directors and 14 were Division Directors. The NSF Acting Deputy Director was also an IPA.⁴

Benefits of Including Rotators in NSF's Workforce – NSF's VSEE and IPA programs strengthen NSF ties with the research community and provide NSF with talent and resources that are critical to meeting its mission. These scientists, engineers, and educators, who come to NSF on rotational assignments from academia, industry, and other eligible organizations, supplement NSF's own world-class staff by bringing cutting edge and up-to-date knowledge and experience to help the agency support an entire spectrum of science and engineering research and education. NSF staff also noted that rotators add value by bringing fresh ideas and management expertise to the agency.

NSF's Workforce

At the time of our audit, NSF had 1,489 total staff.⁵ Of those, 1,099, or 74 percent, were permanent employees. The remaining 390, or 26 percent, were non-permanent staff. At the Assistant Director, Division Director, and Deputy positions within the directorates and science offices, 26 out of these 75 executive-level staff were non-permanent. At the executive level, non-permanent staff were predominant in the positions of Assistant/Science Office Director (64 percent) and Division Director (58 percent).⁶

Percentage of Permanent and Non-Permanent Staff Comprising NSF's Total Workforce

Permanent	1099	74%
Non-permanent	390	26%
NSF's Total Workforce	1489	100%

⁴ For our purposes, we included Assistant/Office Directors, Executive Officers/Deputies, Division Directors, and Division Deputies/Executive Officers in our definition of executive-level science staff. We did not include the NSF Director, Deputy Director, or staff at the AD-5 level.

⁵ Total staff does not include the Office of Inspector General or students. Further, if a person was acting in a vacant position at the time of our audit, we counted the position as vacant, not filled.

⁶ Of 11 Assistant/Science Office Directors, there were 2 permanent employees, 1 temporary employee, 6 IPAs, and 2 vacant positions. Of the 31 Division Directors, there were 8 permanent employees, 4 temporary employees, 14 IPAs, and 5 vacant positions.

Breakdown of Non-Permanent Staff

NSF's Total Workforce	Permanent	Rotators		Temporary	Intermittent
		IPAs	VSEEs		
1489	1099	174	55	104	57
100.0%	73.8%	11.7%	3.7%	7.0%	3.8%

The majority of rotators are in the directorates and science offices. Of the 229 rotators, only 5 worked in NSF's business offices; the remaining 224 worked in the directorates and sciences offices.

As noted earlier, most VSEEs were Program Directors. IPAs, however, served in many of NSF's executive positions.

Directorate and Science Office Executives by Appointment Type

Type of Executive Position	Permanent	IPAs	Temporary	Vacant	Total
Assistant/Office Director	2	6	1	2	11
Deputy Assistant Director/Executive Officer	8	0	0	2	10
Division Director	8	14	4	5	31
Deputy Division Director/Executive Officer	16	0	1	6	23
Total	34	20	6	15	75
	45%	27%	8%	20%	100%

IPAs filled over a quarter of NSF's executive-level science positions. (See Appendix C for a detailed illustration depicting NSF's use of IPAs in its executive-level science workforce at the time of our audit.) An earlier National Academy of Public Administration report noted that because of the limited tenure of rotators and the job mobility of some permanent employees, NSF experiences a great deal of turnover in its executive ranks. It said that a multi-year time lapse picture of NSF's executive-level science workforce would "give the appearance of many blinking lights."

Use of IPAs at Other Federal Agencies

In order to compare how NSF uses its IPAs, we identified five other federal agencies that use IPAs to supplement their existing workforce, and reviewed their policies for the use of IPAs. These agencies are the Department of Energy (DOE), the National Aeronautics and Space Administration (NASA), the National Institutes of Health (NIH), the Environmental Protection Agency (EPA), and the Veterans Affairs Administration (VA). Relative to the number of permanent employees, NSF is a major user of IPA authority for bringing cutting-edge knowledge into its workforce.

Use of IPAs at Other Federal Agencies

<i>Agency</i>	<i>% IPA out of total workforce</i>	<i>Are IPAs allowed to supervise?</i>	<i>Examples of positions filled by IPAs</i>	<i>Are IPAs included in performance management system?</i>
VA	0.6%	Y	Research	N
EPA	0.1%	Y	Scientist, Engineer, Special Assistant	Y
DOE ⁷	0.7%	Y	Science/Research	Y
NIH	1%	N	Institution Directors, Science/Research	N
NASA	0.3%	Y	Project Manager, Scientist, Engineer, Educator	N
NSF	12%	Y	Assistant Director, Division Directors	N

IPAs comprised 12 percent of NSF's workforce as compared to 1 percent or less of the other federal agencies reviewed. The other agencies predominantly use IPAs in technical research and science positions, which may be supervisory. However, NSF is unique in its routine use of IPAs for managerial, executive-level positions. Finally, while NSF, like NASA, NIH and VA, did not have performance management requirements for IPAs, two agencies (EPA and DOE) did require IPA involvement in performance management.

⁷ This applies only to DOE's headquarters office.

Results of Audit

Based on our limited assessment, we found that NSF generally has the components of an effective personnel management system and followed OPM and government-wide requirements. Nothing came to our attention to indicate that NSF's personnel management system was ineffective. With the exception of performance management, NSF applied the components of effective personnel management to its permanent, temporary, and IPA staff in the same manner.

However, differences exist in NSF's management of various appointment types at the executive level. Specifically, NSF does not include IPAs in its formal performance management system even though they function in the same capacities as NSF's federal executives. Additionally, we noted that IPAs may not have prior working knowledge of the federal government culture or of federal government management processes because they are rotating into NSF from universities and other institutions.

As a result, NSF's rotating director model presents challenges to effective personnel-management performance and oversight. Because IPAs do not have a written record of performance, NSF risks not holding them accountable, as it does its federal employees, in accomplishing NSF's mission and goals. Also, the fact that IPAs do not always have prior knowledge of, or experience with, the federal workplace culture or federal government management processes gives them a steep learning curve when they arrive at NSF.

NSF takes some steps to mitigate these risks; however, NSF could do more to address the challenges associated with the rotating director model. NSF should require that IPAs, at all levels, be included in the performance management system, in an appropriate manner. In addition, NSF should ensure that it is capable of effectively preparing and integrating its rotating executives into the federal government workplace.

Components of an Effective Personnel Management System

An effective personnel management system is critical to attract, develop, and retain quality employees from diverse backgrounds, and to help ensure staff perform at high levels and accomplish the agency mission. The Office of Personnel Management (OPM), the Government Accountability Office, and other scholarship have identified the elements of an effective personnel management system. While personnel management is a large and complex area of study, we identified six components of personnel management as particularly important to our assessment of NSF's rotator model. First, these criteria form a basis to make a comparison between NSF's management of permanent and non-permanent staff. Second, these elements distinguish between the components of an

agency-wide personnel management system and the components of such a system at an individual staff level. When presented with these elements, NSF officials agreed that they were an appropriate basis for making a comparison between NSF's management of permanent and non-permanent staff.

The components we identified were: performance management, recruitment, human capital and workforce planning, leadership succession management/ knowledge transfer, continuous learning, and employee integrity. A description of each follows.

Performance Management

OPM requirements and other scholarship describe performance management as the formal process of planning work and setting expectations, continually monitoring performance, developing performance capacity, periodically rating performance, and rewarding good performance. Performance management is a key component of effective personnel management because it is the process for ensuring that staff understand what is expected of them, and holds them accountable for their performance. We focused on performance management because ensuring that all staff, including executives, are working towards common goals is critical to accomplishing the organization's mission. Additionally, we focused on performance management because IPAs fill key executive and management positions at NSF.

Recruitment

Recruitment is the process of attracting, screening, and selecting qualified people for a position. Federal law imposes several requirements for the recruitment of federal jobs, including that employee selection and advancement must be based on relative ability, knowledge and skills, and fair and open competition. In addition, OPM requires that employees in the Senior Executive Service meet five core qualifications and that these qualifications are certified by a Qualifications Review Board⁸ before individuals are appointed to the Senior Executive Service. Ensuring that potential employees possess the qualifications and skills needed to perform the job is critical to both the employee's and the organization's success. However, although many are serving in executive positions, OPM does not require IPAs to have their executive qualifications certified by a review board. Therefore, we focused on NSF's recruitment activities related to ensuring that potential executives possess the qualifications and skills needed to perform the job.

Human Capital Management and Workforce Planning

Strategic human capital management seeks to place the right people in the right jobs to most effectively perform the work of the organization. To this end, federal regulations require that agencies maintain a current human capital plan and report annually on human capital management to OPM. Human capital

⁸ Qualifications Review Boards are OPM-administered independent boards of senior executives that assess the executive core qualifications of SES candidates.

management also includes an analysis of an agency's workforce. We included human capital and workforce planning to see how NSF incorporates rotators and whether positions are appropriately identified as reserved for career employees or designated for IPAs as part of the agency's workforce planning effort.

Leadership Succession Management/Knowledge Transfer

Generally, leadership succession management refers to a plan to address succession of current workers as they leave the workforce due to retirement and other factors. OPM states that agencies should ensure continuity of leadership through succession planning and executive development programs. Within this component is the recommendation that organizations ensure that knowledge is transferred from old to new leadership. We included knowledge transfer because NSF relies on IPAs from outside the federal government to fill many of its executive leadership positions, a fact which ensures substantial turnover in the executive ranks. In addition, the temporary nature of NSF's rotator model creates additional challenges in ensuring that new executives have the knowledge necessary to lead the agency.

Continuous Learning

NSF's March 2008 *Human Capital Strategic Plan* describes continuous learning as a component of effective personnel management that results in better performance, advancement, and/or enhanced capacity. We focused on the adequacy of NSF's efforts to provide two specific elements of continuous learning. These elements were the annual security awareness training mandated by federal law for all federal employees, and training that OPM requires managers and supervisors to complete within one year of their appointment to a federal job, and periodically thereafter. We selected these two elements because they are federal requirements that rotators may not be required to fulfill in the academic environment.

Employee Integrity

According to OPM, employee integrity includes ensuring that leaders maintain high standards of honesty and ethics. To this end, federal law requires all employees to complete annual ethics training. NSF also requires senior employees to file annual financial disclosure reports to identify potential conflicts of interest. In addition, OPM requires that employees complete introductory and on-going training on antidiscrimination and whistleblower protection laws as part of the Notification and Federal Employee Antidiscrimination and Retaliation Act (No FEAR Act).

Ensuring employee integrity is particularly important at NSF because of the nature of its mission to promote the progress of science. Many IPAs serve in leadership positions at NSF and make recommendations and decisions about which individuals and organizations will receive funding. This situation can create potential for conflicts of interest because many rotators come from and

return to academic organizations with research programs that receive funding from NSF.

We assessed each of these elements to determine whether NSF had the components of an effective personnel management system.

NSF Generally has the Components of an Effective Personnel Management System

Based on our limited assessment, we found that NSF generally has the components of an effective personnel management system and followed OPM and government-wide requirements. Nothing came to our attention to indicate that NSF's personnel management system was ineffective. With the exception of performance management, NSF applied the components of effective personnel management to both its permanent and temporary staff and IPAs in the same manner.

In recruiting, NSF seeks SES managerial and leadership qualifications and competencies in its executive-level staff regardless of appointment type. Application materials for executive-level positions clearly stated that managerial and leadership knowledge and experience was a requirement.⁹

NSF's *Human Capital Strategic Plan* and other human capital initiatives evidence NSF's human capital and workforce planning. NSF has stated that it is committed to becoming a model for human capital management in the federal government and has developed human capital initiatives to address the challenges of the rotating director model.

In the area of leadership succession/knowledge transfer, NSF has attempted to ensure institutional continuity and awareness of internal policies and procedures through leadership change by informally "pairing" executive-level IPAs with permanent staff. Most recently, it sought to improve overall knowledge and succession management through its *New Executive Transition* (NExT) program, intended to quickly and effectively integrate new executives.

For continuous learning, NSF provided records showing that all employees in our sample, regardless of appointment type, completed annual computer security awareness training, as required by federal law. NSF also provided a draft comprehensive training plan for executive leaders, supervisors, and managers to comply with OPM's recently released final rules requiring managers and supervisors to receive management training within one year of their appointment.

Regarding employee integrity, NSF requires both its permanent and non-permanent staff to complete annual ethics and No FEAR Act training. It also

⁹ According to NSF, the qualifications of all executive-level selectees are reviewed by the Division of Human Resources Management office and reviewed and approved by NSF's Deputy Director prior to appointment.

requires appropriate employees, including non-permanent staff, to complete annual financial disclosures. NSF recently hired an executive-level director for its Office of Equal Opportunity Programs and has made equal employment opportunity (EEO) training available to all employees. NSF stated that, as of January 2010, over 200 senior managers have attended this EEO and diversity training.

Although NSF's personnel management system is generally effective, as noted, it does not include IPAs in the performance management process.

NSF Does Not Include Rotating Executives in its Performance Management System

Unlike its career and temporary federal employees at the executive level, NSF does not include IPAs in its performance management system, even though IPAs function in the same capacity as those executives. Specifically, NSF does not require IPAs to have written performance plans, progress reports, or performance appraisals, as it does for permanent, career and temporary executives. Nonetheless, NSF expects its executives to provide strategic direction, make investment and funding decisions, oversee and monitor grant-making processes, as well as supervise and manage scientific and administrative staff. These expectations are the same regardless of whether the person performing those functions is a career or temporary employee or an IPA.

Elements of an Effective Performance Management System

Because the agency has the same performance expectations for IPA executives as it does for other executives, we assessed how NSF applies the elements of an effective performance management system for a limited sample of permanent and temporary employees and IPAs. The elements of an effective performance management system include documented performance plans, progress reports, and performance appraisals. We also looked at position descriptions for different appointment types as they can aid in an effective performance management system by establishing initial expectations.

We found that NSF provides permanent and temporary employees with position descriptions that describe their roles and responsibilities. For IPAs, this description is included in the IPA agreement between the agency and the home institution. Position descriptions for permanent and temporary employees contained more detail than those for IPAs. Since position descriptions are important tools for setting expectations, NSF may benefit from including a more detailed explanation of leadership expectations in IPA agreements. For example, the position description for a temporary Division Director specifically defined providing "leadership" as "ensuring communication, motivating staff and promoting team spirit," while the IPA agreement listed providing "leadership" as a qualification but did elaborate on what this meant.

The next step in an effective performance management system is establishing performance plans against which performance can be measured. The critical elements established in performance plans provide the basis for holding staff accountable for work assignments and responsibilities. In accordance with OPM requirements, NSF provides written performance plans to its permanent and temporary employees. OPM does not require IPAs to have performance plans and NSF does not typically provide them. As a result, the agency does not have documented standards for evaluating IPA's performance or for holding them accountable.

Progress reports and performance appraisals are the final step in an effective performance management system. While NSF does not require performance appraisals of IPAs, there was widespread internal support for providing them to IPAs. Each of the seven directorates and four science offices informed us that they verbally communicate performance expectations to IPAs, as well as discuss with IPAs their performance against those expectations, but they were not able to provide us with a written record of this communication.

Further, to put NSF's management of its IPAs in perspective, we examined how five other agencies handled performance management for IPAs. Two of the five include IPAs in their performance management process in some manner. For example, EPA requires that IPAs and their supervisors complete a written evaluation at the end of the rotational assignment which the agency keeps on file.

NSF's Division of Human Resource Management (HRM) recommended that the agency require annual performance assessments of IPAs and, to this end, provided senior management with a draft proposal in May 2005. It also proposed developing performance standards for executive-level IPAs and ensuring that new IPA agreements include performance standards. Also, the proposal recommended that supervisors of IPAs understand their responsibility to conduct annual appraisals with IPAs. This proposal also cited several potential benefits of conducting performance appraisals of IPAs. For example, it stated that appraisals would "provide valuable feedback for IPA participants and serve as a communication tool between NSF and IPA participants." NSF had not adopted these internal recommendations at the time of our audit.

In addition to the benefits noted in HRM's recommendation, including IPAs in NSF's performance management process could have other benefits for NSF's workplace environment. Because of its reliance on IPAs at the executive level, NSF needs to hold IPAs accountable for improving the agency's effectiveness in the accomplishment of agency mission and goals. At the time of our audit, six of the eleven Assistant/Science Office Directors were IPAs. Therefore, the potential impact on the workplace environment as a result of having performance appraisals for IPAs could be heightened.

As NSF does not have a written record of an IPA's performance, poor performance is not documented. Because IPAs may return to NSF in another capacity, such as a permanent employee, having a documented performance

evaluation could assist NSF in hiring decisions. Also, IPAs evaluate the performance of federal employees, yet those IPAs conducting the appraisals do not receive an evaluation. This difference could result in a perception of unfair treatment. Further, IPAs may have a greater commitment to their supervisory responsibilities if NSF documented its expectations and rated IPAs on how well they met those expectations.

Rotating Executives Generally Do Not Have a Working Knowledge of Federal Government Culture and Management Processes

NSF's rotating director model is important in bringing the agency experience in cutting edge science and fresh ideas in organizational approach. IPAs generally have not worked in the federal government and therefore, are often not familiar with government rules and administrative processes in the federal workplace.

Both rotators and permanent staff stated that training for rotators should include explaining the government culture and work environment. During our interviews, rotating directors noted several areas where they believed that training and orientation about federal government culture and management processes would have been beneficial for them. For example, one rotating Division Director stated that he did not know that one of his responsibilities was to conduct employees' mid-term reviews. He learned about this process on-the-job because NSF does not offer training delineating that performance reviews must be done or how to do them. Another rotating director stated that frequently rotators came to NSF as "little entrepreneurs" and did not receive orientation to educate them about how government processes may differ from other work environments. Each of the rotating directors cited the importance of having a permanent staff person who assisted them in understanding NSF's culture and processes. To this end, NSF attempts to pair a non-permanent executive with an experienced career executive, which contributes to the new executive's transitioning.

In addition to these areas, our interviews also demonstrated the need for training to address rotators' lack of familiarity with government processes such as approving leave and travel, the budget process, and monitoring time and attendance. Rotators also stressed the importance of having such training as soon as they assume their positions at NSF.

Based on these concerns, effectively preparing its rotating executives for the federal government workplace could address some of NSF's long-standing workplace issues. Existing training requirements for career employee development may not be sufficient for preparing IPAs to perform federal government processes within the federal government culture. NSF does periodically offer training on some of its management and administrative process that is available to all employees. However, new executives are not required to take this training.

NSF has recognized this need and is developing the NExT program specifically to address some of the challenges associated with the rotational director model. The primary purpose of this program is to effectively integrate new executive staff into the agency. Future components include checklists, training, and other resources expected to help new executives more quickly recognize and perform their major roles and responsibilities.

At the time of our audit, NSF had implemented one component of the NExT program, the Executive Resources Website. The website is an interactive handbook for new executives that contains human resource and leadership information, including information regarding performance management, recruitment, and equal opportunity and diversity. The agency is collecting usage statistics and comments about this website.

In addition, NSF has ongoing pilot programs that include knowledge management and leadership training, such as leadership and problem-solving skills training and performance management workshops. The agency plans to launch other NeXT program components, including executive coaching, within the next few months. As NSF is still developing these components of the program, we have not attempted to determine their effectiveness. Because a substantial number of NSF new executives are IPAs coming from outside of the federal government, NSF should ensure that the training intended to integrate new executives into the agency contains enough information to orient IPAs with unfamiliar management processes.

Recommendations

NSF recognizes the challenges to effective personnel management involved in having a rotating workforce and is committed to improving its human capital management. We recommend that the NSF Director:

1. Create and document a performance management process appropriate for IPAs. Such a process does not have to be the same as the process for federal employees but should include:
 - establishing a formal performance assessment policy and practice that requires annual performance assessments for IPAs and some form of documentation that the assessments occurred;
 - developing IPA performance standards for both program-level and executive-level IPAs;
 - ensuring that each new IPA agreement includes an attached set of performance standards;
 - ensuring that supervisors of IPAs understand their responsibility to conduct annual appraisal discussions with all IPA assignees; and
 - ensuring that each new IPA agreement contains sufficient detail to convey expectations of the position.
2. Ensure that NSF continues its efforts to implement an appropriate process for integrating new executives into the agency sufficient to orient IPAs with unfamiliar management processes.

Agency Response

NSF agreed with our recommendations and in its response, indicated that it has already taken steps towards developing and implementing a performance management process for all IPAs similar to that for federal employees.

We have included NSF's response to this report in its entirety as Appendix A.

OIG Contact and Staff Acknowledgements

Karen Scott - Senior Audit Manager
(703) 292-7966 or kscott@nsf.gov

In addition to Ms. Scott, Susan Carnohan, Kelly Stefanko, and Gina Zdanowicz made key contributions to this report.

Appendix A: Agency Response

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230



March 29, 2010

TO: James Noeth, Acting Associate Inspector General for Audit, NSF Office of the Inspector General

FROM: Cora B. Marrett, ^{CMB}Acting Deputy Director, National Science Foundation

SUBJECT: Audit of NSF's Workforce Management: Rotating Director Model

Thank you very much for providing us the opportunity to review and provide comments on the official draft report for the OIG audit: *NSF's Workforce Management: Rotating Director Model*.

We are pleased that your assessment supports the conclusion that NSF is acting in accordance with OPM and government-wide requirements. We believe the approach designed by your staff to further their analysis -- first identifying components of an effective personnel management system and then analyzing NSF's practices against those components -- provided important information that will enhance NSF's performance in this area. We are also pleased with your conclusion that NSF generally has all the components of effective practice in its personnel management system.

Although rotators assigned to NSF under Intergovernmental Personnel Act (IPA) authority are not federal employees, we agree with your Recommendation #1 that there should be a performance management process for the rotating IPA executives similar to that for federal employees. In fact, on February 16, 2010, NSF Senior Management endorsed developing a performance management process for all IPA rotators that is consistent with that for federal employees. The NSF Performance Review Board has been tasked to develop the process and a plan for its implementation. We also appreciate your recognition of the work NSF has done to prepare rotating executives of all types for their executive positions, and agree with your Recommendation #2 that NSF should continue to improve and implement these efforts.

We very much thank you and your staff for the work they have done in conducting this audit toward our common goal of ensuring that NSF is effective in fulfilling its mission.

cc: Allison Lerner
Karen Scott

Appendix B: Objective, Scope, and Methodology

The Senate Committee Report accompanying NSF's 2010 appropriations bill requested that the OIG provide a report assessing NSF's rotating director model. The objective of this audit was to determine if NSF has a rotator model in place that ensures effective personnel-management performance and oversight at its executive level. In making this determination, we obtained listings of staff in each of NSF's directorates, and the Offices of Polar Programs, Cyberinfrastructure, and International Science and Engineering as of September 11, 2009, to identify NSF's workforce structure at a particular point in time. Additionally, we obtained staff listings for NSF's Office of Integrative Activities and the non-science offices as of October 23, 2009. We focused our audit efforts on NSF's executive-level staff, not only because of their critical and broad affect on the organization in setting strategy, managing, and providing leadership, but also because a significant number of NSF executives are not permanent staff.

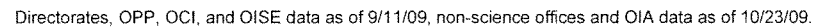
Personnel management and the use of rotators at NSF has been the subject of several prior reports and studies, both internal and external to NSF. We reviewed these reports to obtain insights pertinent to our audit objective. (See Appendix D for a description of these reports.) We also researched and reviewed federal laws and regulations, and NSF policies and procedures addressing personnel management.

To establish a framework for assessing NSF's personnel management system, we reviewed relevant scholarship that identified the components of an effective personnel management system, with particular focus on elements that directly affect individuals. This scholarship included guidance from the Office of Personnel Management, the Government Accountability Office, and human resource professional associations. (See Appendix E for a description of the scholarship.) We ultimately limited our definition of effective personnel management to encompassing six elements: employee integrity, recruitment, performance management, continuous learning, leadership succession management/knowledge transfer, and human capital and workforce planning. We discussed these components with NSF officials, and obtained their concurrence that these were reasonable criteria for our use in comparing how NSF's managed its permanent and non-permanent staff.

Within our defined framework, we assessed the extent to which NSF incorporated these elements into its personnel management processes. We reviewed relevant NSF policies and procedures and interviewed permanent and rotating NSF personnel, as well as Division of Human Resource Management officials and staff, to gain a variety of perspectives on the role, challenges and satisfaction of NSF's workforce structure. We also selected a small judgmental sample of permanent and non-permanent executives from our listing of Assistant/Science Office Directors, Deputy Assistant Directors/Executive Officers, Division Directors, and Deputy Division Directors/Executive Officers. For these executives, we reviewed files and documents related to their

recruitment, performance, and training, and compared the documents to determine, on a limited basis, the extent to which NSF incorporated the elements into its processes, and the general effectiveness of its personnel management system. Finally, we identified five other federal agencies that use IPAs and obtained information on the roles of IPAs at those agencies.

We conducted this performance audit between September 2009 and March 2010, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.



Appendix D: Assessments of NSF's Use of Rotators

NSF's Action Plan on "NSF Employee Satisfaction and Wellness Initiatives," September 2009

NSF employees are asked to assess the Foundation's human capital management on a bi-annual basis via the Federal Human Capital Survey, which has been administered government-wide since 2002. OPM has used the results of the 2006 and 2008 surveys to provide agencies with feedback about employee perceptions regarding its human capital initiatives. In response to memoranda from OPM, NSF provided an overview of its action plan and targets for improving employee satisfaction and employee wellness, which was also included in its FY 2011 budget submission to Office of Management and Budget (OMB). NSF stated that effective implementation of the action plan would be a critical step in achieving its goals of being a model federal agency for human capital management. NSF stated that establishing clear expectations for rotators in fulfilling their responsibilities as managers, as well as providing training to help ensure their effectiveness in their roles would be a critical consideration in the overall management training program that it plans to provide.

Senior Executive Leadership at the National Science Foundation: Investing in our Future, A Report to the Chief Operating Officer, May 15, 2007

The NSF Executive Resources Board (ERB) is a representative group of senior executives established by the Director for the development and administration of a systematic program for managing the Foundation's executive resources. Specifically, it is responsible for developing and recommending policy and formulas regarding SES performance management, pay, bonuses and awards for NSF executives. In 2007, the ERB studied NSF's executive leadership and recommended that the science directorates identify back-up senior leaders, conduct succession planning and training, and complete development of a comprehensive executive orientation program.

Proposal for IPA Performance Assessment Process, May 2005

In May 2005, NSF's Division of Human Resources Management provided senior management a draft proposal recommending that the agency annually assess IPA performance. Specifically, it called for a performance management process to include (1) establishing a formal performance assessment policy and practice that requires annual performance assessments for IPAs, (2) developing IPA performance standards for both program level and executive level IPAs, (3) ensuring that each new IPA agreement includes an attached set of performance standards, and (4) ensuring that supervisors of IPAs understand their responsibility to conduct annual appraisal discussions with all IPA assignees. This proposal cited several potential benefits of conducting performance appraisals of IPAs. NSF had not adopted these internal recommendations at the time of our audit.

NSF Use of the Intergovernmental Personnel Act, August 2004

In the conference report accompanying the 2004 Consolidated Appropriations Act (Public Law 108-199), Congress requested that the U.S. Office of Personnel Management conduct a review of NSF policies and practices regarding its use of rotators. Specifically, the conferees requested that OPM focus on areas including the percentage of the NSF professional workforce staffed through temporary appointment, and the use of temporary appointments to staff the most senior positions at NSF. Among other things, OPM expressed concerns about the impact of rotators on continuity of leadership and on the balance between IPAs and career employees.

National Science Foundation: Governance and Management for the Future, April 2004

The Report from the Committee on Appropriations accompanying NSF's FY 2003 House appropriations bill (H.R. 5605) called for an independent study of NSF to address four organizational and management issues, one of which being using rotators in key positions, relevant to NSF's projected growth. The National Academy of Public Administration (NAPA), who performed the study, reported that NSF faces operational challenges in using rotators in key positions but recommended that NSF continue to use rotators in the positions of program officers, managers, and assistant directors. The report suggested that NSF balance the number of rotators and permanent employees based on its experience and the specific requirements of individual positions and recommended that NSF establish and support an ongoing management and executive level knowledge-sharing program to ensure that key NSF permanent employees and rotators are current in their knowledge of contemporary management tools as well as the evolving cultures of NSF and the research community.

Appendix E: Personnel Management Scholarship

Human Capital Forum – Principles, Criteria, and Processes for Governmentwide Federal Human Capital Reform, 2004

In April 2004, the Government Accountability Office (GAO) hosted a forum with the National Commission on the Public Service Implementation Initiative to discuss developing a government wide framework for human capital reform. The participants in the forum developed principles, criteria, and processes which ultimately served as a starting point for this framework.

Title 5 Code of Federal Regulations

The Code of Federal Regulations (CFR) is an annual codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. Title 5 – Administrative Personnel, Part 250 – Personnel Management in Agencies are the federal government's requirements for human resources management practices. These require the agency to maintain a current human capital plan, provide OPM an annual Human Capital Management Report, and conduct an annual survey of its employees (the results of which must be available to the public and posted on its web site).

Additionally, Title 5 CFR mandates government-wide training in the areas of (1) computer security awareness (Title 5 CFR §930.301-305), (2) ethics (Title 5 CFR §2638.703 and 704), and (3) executives, managerial, and supervisory development (Title 5 CFR Part 412).

OPM Final Rules on Training; Supervisory, Management, and Executive Development, 2009

In December 2009, OPM released 5 CFR Parts 410 and 412 to “implement certain training and development requirements contained in the Federal Workforce Flexibility Act of 2004 and to make other revisions in OPM regulations. The Act makes several significant changes in the law governing the training and development of Federal employees, supervisors, managers, and executives.”

5 USC Chapter 43 Subchapter II – Performance Appraisal in the Senior Executive Service

Chapter 43 of title 5, United States Code, provides for performance management for the Senior Executive Service (SES), the establishment of SES performance appraisal systems, and appraisal of senior executive performance. 5 USC Chapter 43 also establishes criteria for the SES performance appraisal system.

Human Capital Assessment and Accountability Framework

As the government wide leader for strategic human capital management, OPM is responsible for and has set a framework for a set of systems, including standards and metrics, for assessing the management of human capital by federal agencies -- the *Human Capital Assessment and Accountability Framework* (HCAAF). The HCAAF evolved from a set of Human Capital standards, issued by OPM in 2002, which were developed through a collaborative effort among OPM, OMB, and GAO.

The HCAAF *Practitioners' Guide* contains 6 sections, each of which is comprised of various critical success factors, which are broken down into key elements for which suggested performance indicators are provided. The Guide serves as the basis for agency strategic human capital management accountability systems that meet OPM requirements.

Introduction to the Position Classification Standards, 2009

OPM's *Introduction to the Position Classification Standards*, most recently revised in August 2009, provides "background information and guidance regarding the classification standards for General Schedule work. It describes the fundamental policies which Federal managers, supervisors, and personnel specialists need to understand in using classification standards to determine the series, titles, and grades of positions." The Introduction sets forth basic principles and policies regarding position classification, including the use of position descriptions.

Guide to Senior Executive Service Qualifications, 2006 and Senior Executive Service Recruitment and Selection

In 2006, OPM completed a review of the Executive Core Qualifications (ECQs) and updated the *Guide to the Senior Executive Service Qualifications*. The changes included development of fundamental competencies, revisions to ECQ-specific competencies, a modified definition of each ECQ, and removal of the key characteristics. "In addition to helping applicants, the *Guide* will be useful to individuals charged with reviewing executive qualifications, including agency personnel and executive development specialists and members of agency Executive Resources Boards." Additionally, OPM's website provides for information about recruitment and selection in the Senior Executive Service, including information about merit staffing and hiring options.

No Fear Act

Based on its belief that that federal agencies cannot be run effectively if they practice or tolerate discrimination, Congress established the "Notification and Federal Employee Antidiscrimination and Retaliation Act of 2002" (No Fear Act). The No Fear Act requires that federal agencies be accountable for violations of antidiscrimination and whistleblower protection laws. Additionally, it requires that each federal agency post certain statistical data relating to federal sector equal

employment opportunity complaints filed with such agency quarterly on its public web site. NSF mandates No Fear Act training for its federal employees and IPAs.



National Science Foundation • Office of Inspector General
4201 Wilson Boulevard, Suite 1-1135, Arlington, Virginia 22230

MEMORANDUM

DATE: March 16, 2012

TO: Dr. Cora B. Marrett
Deputy Director, National Science Foundation

FROM: Dr. Brett M. Baker /s/
Assistant Inspector General for Audit

SUBJECT: *Audit of National Science Foundation's Independent Research and Development Program, Report No. 12-2-008*

Attached please find the final report of our audit of NSF's Independent Research and Development (IR/D) program. The report contains one finding on the need for NSF to strengthen management controls over the IR/D program.

In accordance with Office of Management and Budget Circular No. A-50, *Audit Followup*, please provide a written corrective action plan within 60 days to address the report recommendations. This corrective action plan should detail specific actions and milestone dates.

We appreciate the courtesies and assistance provided by the NSF staff during the audit. If you have any questions, please contact Marie Maguire, Senior Audit Manager, at (703) 292-5009.

Attachment

cc:	Allison Lerner	Fae Korsmo
	Michael Van Woert	Kathryn Rison
	Arthur Reilly	Martha Rubenstein
	Cliff Gabriel	John Lynskey
	Eugene Hubbard	Susan Carnohan
	Judith Sunley	Marie Maguire
	Christine Cataldo	Wendell Reid
	Fred Wendling	Emily Franko

Audit of NSF's Independent Research and Development Program

**National Science Foundation
Office of Inspector General**

**March 16, 2012
OIG 12-2-008**



Introduction

The National Science Foundation (NSF) is an independent federal agency whose mission is "to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense." To support this mission, NSF funds approximately 20 percent of all federally-supported basic research conducted at the nation's colleges and universities, primarily through grants and cooperative agreements. To accomplish this mission, NSF seeks to maintain a world-class staff of scientists, engineers, and educators who bring current knowledge, insight, and cutting-edge perspectives to the scientific and engineering research and education funded by NSF.

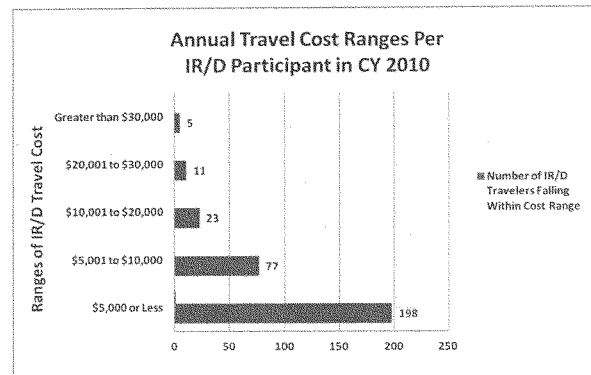
To maintain its scientific workforce at the frontiers of discovery, NSF relies on authority provided in the National Science Foundation Act of 1950, which gives the NSF Director the authority to appoint or detail on a temporary basis, scientists, engineers, and other technical and professional personnel on a leave of absence from academic, industrial, or research institutions. With this authority, NSF supplements its permanent, career employees with a variety of non-permanent staff, including temporary and limited term appointments, as well as two "rotating" programs which allow staff to maintain their relationships with their home institutions. These rotating programs are (1) the Visiting Scientists, Engineers, and Educators (VSEE) program, which appoints staff as salaried Federal employees for up to two years while on leave from their home institutions, and (2) the Intergovernmental Personnel Act (IPA) of 1970 mobility program, which allows staff to be detailed to NSF while remaining on the rolls of their home institutions. In the latter case, IPA agreements are signed between NSF, the home institution, and the employee; and payment for salary and benefits is made through a grant from NSF to the home institution.

NSF's Independent Research/Development (IR/D) Program

To assist in recruiting scientists actively involved in research, NSF's Independent Research/Development (IR/D) Program permits employees and non-permanent staff to maintain their professional competencies and remain actively involved with their professional research while working at NSF. IR/D activities should relate to accomplishing NSF's goals and are considered to be official duties.

IR/D participants must have a written plan, which is first approved by the supervisor, of the proposed activities and estimates of working days away from NSF in a year and NSF costs, including travel. Of 250 working days in a year, NSF policy allows IR/D participants to spend up to 50 (20 percent) days a year on IR/D activities. The Office of Information Resource Management (OIRM) reviews the plan to ensure it meets the administrative requirements and then forwards it to the Office of General Counsel (OGC) to review for Conflict of Interest issues and to brief the employee/IPA on any legal issues involved with the individual's IR/D activities.

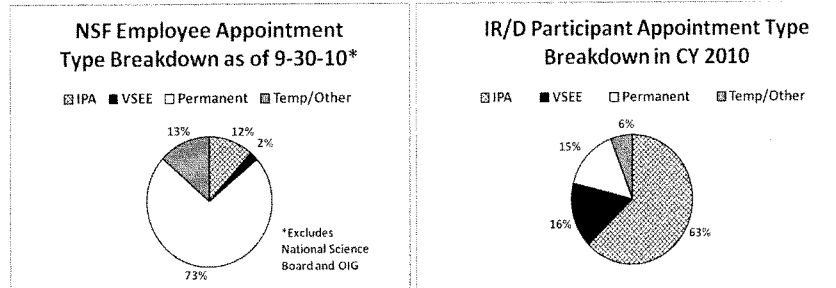
From 2004 to January 2011, the number of IR/D participants increased from 183 to 277. The 277 IR/D participants in January 2011 represented about 18 percent of NSF's total workforce of approximately 1,500 staff. We determined that in calendar year (CY) 2010, 314¹ NSF staff completed over 1,900 expense reports in which they indicated "IR/D" was the primary purpose of their trip. Their total charges for IR/D trips on these expense reports was approximately \$1.8 million, and the range per traveler varied from approximately \$225 to \$45,000.²



Within NSF's workforce, most of the IR/D travelers are IPAs, who typically travel to and from their home institution to conduct research. In CY 2010, IPAs and VSEEs took 1,740 (90 percent) of the 1,928 IR/D primary trips.

¹ While there were 277 IR/D participants as of January 2011, there were 314 total NSF staff persons who took IR/D trips during CY 2010, which includes participants who left NSF before January 2011.

² Travel expense amounts are based on expense reports for calendar year 2010 that had been completed by travelers at the time of our review, however we did not verify all reports. The amounts come from travelers' self-reporting "IR/D Home" or "IR/D Other" as the trip purpose and do not include any IR/D trips that were not coded as such. Furthermore, if trips combined IR/D travel and other NSF work and the traveler coded the trip as "IR/D", then the total cost of the trip was included in our IR/D travel amount.



Permanent employees and VSEEs spending time away from NSF on approved IR/D activities record their time as Official Business hours in NSF's current time and attendance system. Their IR/D travel expenses are charged to the Agency Operations and Award Management (AOAM) appropriation in the NSF's Financial Accounting System. IPAs, however, are not required to track their time. IPA's travel expenses are charged to the program funds of their division. All IR/D participants use the FedTraveler system to plan, book, track, obtain approval of, and request reimbursement for travel. NSF employees and VSEEs are reimbursed for all allowable travel expenses in accordance with the Federal Travel Regulation (FTR) for temporary duty travel. IPAs who have relocated to NSF receive reimbursement for all allowable expenses in accordance with FTR, while IPAs who have not relocated receive reimbursement of transportation expenses and limited per diem.

In response to an OIG Office of Investigations' September 2010 Management Implication Report on a review of IR/D travel in Fiscal Year 2007, which identified internal control deficiencies associated with the program, NSF formed an IR/D Task Group to develop and implement changes to strengthen the oversight and accountability of the IR/D program. The NSF Task Group included representatives from the science directorates, OIRM, OGC, and the union.

The IR/D Task Group issued a final report on May 6, 2011 which contained several recommendations on program scope, oversight mechanisms, automation, and training and guidance. A significant recommendation from the Task Group's report is that NSF should include travel time in the calculation of IR/D days and the 50-day limit. Other recommendations, which will improve management oversight of the program, included: creating new accounting codes in the Financial Accounting System to compile and track IR/D-related expenditures; configuring the new time and attendance system, planned for release during 2012, to account for normal workday hours spent on IR/D activities for all NSF staff except IPAs; automating the IR/D plan application and approval process; developing a detailed procedural and informational guide to the IR/D program; and providing periodic training sessions for IR/D participants. The recommendations from the IR/D Task Group's report are included in Appendix C.

Results of Audit

Based on our audit we determined that in CY 2010 NSF lacked sufficient oversight controls to properly monitor the IR/D program and had not fully assessed its impact on travel costs, staff time, and NSF's workload. In CY 2010, senior NSF managers interviewed also had limited insight into the program and the related time and IR/D travel costs at the agency level. Further, NSF had not identified the IR/D program's goals or quantified its outcomes. While NSF, in response to the OIG's September 2010 Management Implication Report and the recommendations of its own IR/D Task Force, has begun taking actions to improve controls over the IR/D program, our review identified additional areas for improvement. Among other things, NSF could more efficiently monitor IR/D costs with an agency-wide process to accumulate and track information from the different NSF's systems which contain the IR/D plans, time tracking, financial and travel costs and activity. Agency management would also be able to ensure that IR/D participants complied with program requirements if NSF implemented a management control to proactively track and monitor IR/D time and travel costs. A proactive alert will be especially critical when NSF implements the change in policy to include travel days in the calculation of IR/D days, increasing the risk of exceeding the 50-day limit.

NSF Should Strengthen Management Controls over the IR/D Program

In CY 2010, senior NSF management had limited insight into the program's travel and time costs and lacked sufficient management controls to monitor the program. NSF had separate systems, which each recorded limited aspects of IR/D activity, but no agency-wide process existed to accumulate, track, and monitor this information. For example, NSF management could not determine total annual travel costs for the IR/D program or identify if individual travelers exceeded the 50-day limit. We obtained FedTraveler information for all NSF travel and, after sorting and searching the information, estimated CY 2010 travel costs for IR/D. The IR/D Task Group's 2011 report recommended system enhancements to automate IR/D plans and begin tracking time and costs after the fact. The Task Group report also recommended an annual accounting of the utilization of the IR/D program for the prior fiscal year. This annual accounting will enable the agency, as well as individual divisions, directorates, and offices, to assess how the program is being used and to inform future planning.

The recommendations in the Task Group report do not address the need to identify goals for and determine the outcomes of the IR/D program. Agency management should develop program goals and establish performance targets to measure progress in achieving those goals. In addition, the agency should periodically evaluate program outcomes and determine if changes are needed based on results and budgetary challenges.

The Task Group report also does not address the need for ensuring that budgets associated with IR/D plans and time limitations associated with the IR/D program are adhered to. We found that some divisions have begun to track IR/D costs on a limited basis, but monitoring of IR/D travel was not done consistently agency-wide. A few IR/D travelers and supervisors informed us that they now track travel days and costs within their division. For example, one division developed a spreadsheet to track the time IR/D participants have spent on IR/D activity for each individual trip. The division uses data from the FedTraveler system and tracks IR/D days used per trip and cumulative days, amount expended, and details of activities. Similarly, another division developed a tracking spreadsheet and uses FedTraveler expense report data to track travel date, purpose, and actual expenditure for all travel by division staff. Even though a few divisions have begun to monitor IR/D time and costs, the agency would be better positioned to monitor the program and ensure compliance with associated budgets and time limitations if it developed a process to monitor IR/D time and costs agency-wide on a real-time basis and provide proactive alerts when the number of travel days or costs is approaching approved limits.

NSF did not have a clear policy on how IR/D days were to be calculated with respect to the 50-day limit. The NSF Personnel Manual, Chapter III, subchapter 700, dated February 6, 2003, states that "generally a participant's IR/D activities may not exceed 50 days per year." While this policy does not specifically state if travel days are to be included or excluded from the 50 day limit, NSF officials had generally excluded travel days. Section 9 of the IR/D plan, NSF Form 1309, updated November 2004, states "no more than 50 days per calendar year can be approved." The IR/D Task Group's report recommends that travel occurring during normal business hours is to be included as part of the 50-days, but the report does not provide detailed instructions to clarify how to calculate IR/D work and travel days. NSF also did not have detailed instructions on how to track IR/D time for IPAs and how to record in the FedTraveler system trips which include both IR/D and other NSF travel, such as outreach or a conference.

In addition, although the IR/D Task Group report notes the need for training of IR/D participants on policies and procedures, the Task Group does not recommend that this training be mandatory for participants and does not address the training needs for supervisors and approving officials. Mandatory training for IR/D participants, supervisors, and approving officials would help ensure that policies are clearly understood and consistently followed throughout the agency. Many IR/D participants we spoke with stated that they had received only limited guidance on how to complete their plans or record travel.

Without an agency-wide tracking process and clear policies and procedures, NSF management did not have the information it needed to accurately monitor IR/D time and travel costs in CY 2010. As a result, we identified 9 staff, or 3 percent of the 314 IR/D travelers, who spent between 51 and 67 work days on IR/D in CY 2010. These 9 individuals spent approximately \$15,000 on IR/D travel that began after incurring 50 work days on IR/D. Because NSF's proposed policy will now include travel time, there is a risk that more IR/D participants may spend more than 50 IR/D days. If the newly

proposed policy to include travel time had been in effect in CY 2010, 14 participants, or 4 percent, were away from NSF between 51 and 71 work days on IR/D³.

In addition, the amount of IR/D activity varied between IPAs, VSEEs, and permanent employees. In CY 2010, 8 of the 9 IR/D participants with more than 50 IR/D days were IPAs and the remaining one was a VSEE. Six of these 9 participants took 20 or more IR/D primary trips, and one of these 9 took 40 trips to the participant's home institution in 2010. Typically, IR/D travel for IPAs and VSEEs included weekend trips. More than 40 percent of all primary IR/D travel was for single weekend trips, which usually included IPAs and VSEEs leaving NSF on a Wednesday, Thursday, or Friday for their home institution and returning to Arlington, Virginia on a Sunday, Monday, or Tuesday. Of the over 1,900 expense reports in 2010 which indicated IR/D was the primary purpose of the trip, over half of the trips were for 3 working days or less, while 18 percent of the trips were for at least 7 working days. We did not review the details of each trip to determine how many days were spent on IR/D and how many were for another purpose, such as leave, telework, or other NSF work. The frequency and length of the trips, which include travel time, leaves limited amount of continuous time to focus on the research during each trip.

The range of IR/D travel costs varied considerably. In CY 2010, 198 (63 percent) of 314 IR/D participants with IR/D primary trips spent \$5,000 or less on travel, while 39 (12 percent) of participants spent greater than \$10,000. For example, one IPA submitted expense reports for approximately \$45,000 for IR/D primary trips. This IPA took 16 primary IR/D trips directly to the IPA's home institution, at an average cost of almost \$1,130 per trip or approximately \$18,000 total. This IPA also made 12 trips combining travel to both the home institution and other locations for a cost of approximately \$27,000. Another IPA took 39 primary IR/D trips to the IPA's home institution, most often leaving Friday and returning Sunday or Monday at an average cost of about \$850 per trip or approximately \$33,000 total. This IPA also traveled to the home institution on three other occasions, typically on the way to or returning from a non-IR/D conference or activity. A third IPA also took 39 primary IR/D trips to the IPA's home institution, usually leaving Thursday and returning the following Monday, at an average cost of approximately \$475 per trip or nearly \$18,600. This IPA also traveled to the home institution on at least four other occasions, typically on the way to or returning from a non-IR/D conference or activity. Finally, one IPA took 29 primary IR/D trips to the IPA's home institution in CY 2010 at an average cost of approximately \$1,137 per trip or nearly \$33,000 despite being at NSF for only 7 full months during CY 2010. The IPA most often left on Thursday or Friday and returned the following Monday or Tuesday. Based on the frequency of the IPA's travel, this further illustrates limited uninterrupted time to spend on research.

IR/D travelers we interviewed stated that they were aware of the need to balance their NSF workload with IR/D research. Many told us that they frequently worked longer

³ The OIG excluded travel days (or a portion thereof) where the IR/D participant left after (during) working day and returned to Arlington in time for work.

hours and occasionally combined telework days with IR/D days when at their home institution. Nevertheless, time spent on IR/D activities, especially time beyond their plan or above the 50-day limit, reduces time available to perform and complete NSF responsibilities and workload, thereby affecting the productivity of their division or office. The current limit of 50 days reduces staff availability for NSF work by 20 percent of the 250 workdays in a year.

NSF's Personnel Manual does not provide guidance on any limits of travel expenses for IR/D travel, and as noted previously the amount spent per person can vary considerably, with 12 percent of the participants spending over \$10,000 on IR/D related trips in CY 2010. The Task Group's May 2011 report does not recommend establishing any limits for IR/D travel. In light of Executive Order 13589, *Promoting Efficient Spending*, dated November 9, 2011, which requires Federal agencies to establish a plan for reducing combined administrative costs, including travel, by not less than 20 percent below Fiscal Year 2010 levels in Fiscal Year 2013, the agency should consider establishing a maximum dollar level for individual IR/D travel costs. If a manager wishes to approve a plan with costs that exceed the cap, the request would need to be justified and approved at a higher management level. The agency should also consider other ways to reduce IR/D costs, including having participants make fewer trips of longer duration or combine NSF telework with IR/D travel.

NSF senior management had not identified overall program goals, determined outcomes, or regularly collected the results of participants' IR/D research. IR/D participants are required to indicate on their IR/D plans how they will report to NSF staff regarding IR/D activities. The nine individuals we interviewed did not prepare a written report of their research activities for their supervisor. Rather, they orally informed their supervisors of their IR/D research results. Some participants indicated that they circulated articles they read to colleagues, but none prepared a written report on the results of their research. The Task Group report recommends that IR/D participants should provide annually a short report which includes a brief description of the results of the activities and any resulting research outputs. Obtaining this information would provide NSF management useful information on the outcomes or benefits of this program.

The Task Group report states that NSF could use data from the annual accounting to evaluate the program and inform future planning. IR/D participants and supervisors we interviewed generally believed that the IR/D program is essential to recruit individuals who are actively involved in current scientific research, with almost all stating that they would not have accepted the NSF position if the program did not exist. In light of Executive Order 13589 and the impact of IR/D on workload and budgets, NSF needs to determine the overall goals and benefits of the program to provide information to NSF management to determine changes needed to promote more efficient and equitable spending of government funds and to accomplish NSF's mission.

Recommendations

We recommend that the NSF Director:

1. Take appropriate action to strengthen management controls over the IR/D program. Such actions could include:
 - A) Identifying goals and outcomes for the program and tracking data to determine if the goals are met.
 - B) Developing and implementing an agency-wide process to track planned and actual IR/D time and expenses for each IR/D participant on a real-time basis. IR/D participants and their supervisors should review this information on a continual basis to prevent time or costs from exceeding the budgeted amounts in the plan.
 - C) Implementing the IR/D Task Group recommendations in the May 6, 2011 report, but also requiring that training be mandatory for current and future IR/D participants and supervisors.
 - D) Providing guidance on how to calculate IR/D work and travel days, as well as how to record trips which include both IR/D and other travel.
2. Reevaluate the existing IR/D policy and practices to consider:
 - A) If the 50 day limit for IR/D should be reduced, balancing NSF's workload needs and the benefits of active involvement in research.
 - B) Ways to reduce IR/D travel costs to meet the requirements of Executive Order 13589. For example, NSF management could establish an annual maximum dollar level for individual IR/D travel costs, requiring justification and approval for travel costs that are planned to exceed that level, and encourage IR/D participants to take fewer trips of longer duration or to combine NSF telework with IR/D travel.

Summary of Agency Response and OIG Comments

NSF concurred with the OIG's recommendations. NSF agreed that additional steps are needed to strengthen management controls over the IR/D program. NSF also agreed to reevaluate its existing policy on the 50 day limit for IR/D activities and to explore ways to reduce IR/D travel costs to meet the requirements of Executive Order 13589.

We consider management's comments and planned actions to be responsive to our recommendations. We look forward to receiving the Corrective Action Plan and working with NSF officials to confirm implementation.


We have included NSF's response to this report in its entirety as Appendix A.

OIG Contact and Staff Acknowledgements

Marie Maguire – Director of Performance Audits
(703) 292-5009 or mmaguire@nsf.gov

In addition to Ms. Maguire, Susan Carnohan, Wendell Reid, Emily Franko, and Jessica Martin made key contributions to this report.

Appendix A: Agency Response



NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

March 8, 2012

OFFICE OF THE
DEPUTY DIRECTOR

MEMORANDUM

TO: Ms. Allison C. Lerner
Inspector General

FROM: Dr. Cora B. Marrett *C. Marrett*
Deputy Director

SUBJECT: NSF Response to the OIG Draft for Formal Comment on the Audit of NSF's
Independent Research/Development (IR/D) Program

Below is the Foundation's response to the OIG Draft for Formal Comment on the Audit of NSF's Independent Research/Development (IR/D) Program. This response was developed in close consultation OIRM, BFA, and the newly established IR/D Council. Please let me know if you have any questions.

NSF Response:

The Independent Research/Development (IR/D) program plays a key role in helping NSF staff remain at the forefront of scientific and engineering research and education, which is necessary for achieving the Foundation's strategic goals of Transform the Frontiers and Innovate for Society. NSF welcomes the recommendations contained in this audit. NSF views these recommendations as a valuable contribution to its on-going efforts to strengthen the overall management of the IR/D program. In response to a September 2010 Management Implication Report on the IR/D program, NSF initiated significant enhancements to the management of the IR/D program. NSF agrees that additional steps are needed to strengthen the management controls over the IR/D program. Such steps, taken as feasible within an environment of constrained resources, will include improved record keeping, program guidance, and training. NSF will also reevaluate the rationale for the 50 day limit on IR/D activities and explore ways to reduce IR/D travel cost to meet the requirements of Executive Order 13589.

CC: Subra Suresh
Marty Rubenstein
Gene Hubbard
Joanna Rom

Judy Sunley
IR/D Council
Clifford Gabriel
Brett Baker
Wendell Reid
Marie Maguire
Karen Scott

Appendix B: Objective, Scope, and Methodology

The objective of this performance audit was to evaluate the effectiveness of NSF's oversight of the IR/D program and our scope was IR/D activity performed in calendar year CY 2010. To establish a framework for assessing the IR/D program, we reviewed relevant criteria that provided a perspective of the IR/D program. We reviewed NSF policies and procedures, including relevant portions of NSF's Personnel Manual, Financial Management Policy Manual, Bulletins, and Conflicts of Interests and Standards of Ethical Conduct Manual. To identify additional criteria for our audit, we reviewed the September 2010 NSF-OIG Management Implication Report on IR/D travel, general internal control standards, and other NSF-related background documents. To further our understanding and develop a possible benchmark for the IR/D program, we contacted other Federal agencies that had a similar mission of scientific research and that also tended to employ IPAs on their staff to determine if they had a similar program. The agencies that responded were the Department of Energy, National Institutes of Health, U.S. Army Research Laboratory, and Defense Advanced Research Project Agency. None of these agencies had a similar program.

We documented processes and identified relevant internal controls over the IR/D program. In addition to our review of NSF policies and procedures, we interviewed NSF-OIG Investigations' staff that performed the work resulting in the September 2010 OIG Management Implications report. We also met with the IR/D Task Group, attended the two agency-wide IR/D forums organized by the Task Group, and reviewed its May 2011 report⁴. We judgmentally selected one IPA, VSEE, and employee IR/D participant to document how NSF divisions and systems compiled and tracked their IR/D activities. As part of our transaction review, we interviewed three Division Directors from the science Directorates as well as staff in the Office of Information and Resource Management and the Division of Financial Management to gain an understanding of their procedures and roles in the IR/D program. We obtained a data download in June 2011 of CY 2010 travel transactions from the FedTraveler system and performed data mining to identify IR/D activity for further review. To calculate the IR/D travel days, we filtered our FedTraveler download to identify and analyze IR/D travel expense reports and itineraries, when available, and we reviewed IR/D plans for selected IR/D participants. We interviewed a judgmental sample of nine IR/D participants based on their 2010 travel records and type of position to get their perspective on the IR/D program and to discuss their IR/D plan and travel.

We reviewed NSF's compliance with its internal guidance for the IR/D program. We did not identify any laws and regulations directly affecting the IR/D program. We did not test for compliance with the Federal Travel Regulation (FTR). However, during the course of our audit, we identified some instances of travelers not submitting their expense reports within 5 working days after the trip is completed as required by FTR.

⁴ The OIG's Office of Investigations provided comments to the IR/D Task Group on their report.

Through interviews with NSF staff and review of documentation, we also obtained an understanding of the management controls over the IR/D program. We identified an internal control deficiency on the lack of management controls to monitor the program, which we discuss in this report. We did not identify any instances of fraud or illegal acts. Except for some examples of high travel costs and days spent over the 50 day limit, we did not identify any abuse.

During the course of this audit, the auditors relied on information and data received from NSF in electronic format that had been entered into a computer system or that resulted from computer processing. We tested the reliability of NSF's computer-processed data by corroborating the results with NSF officials independent of the computer system. Because FedTraveler records only include expense reports that were submitted and approved at the time of our download, they do not include any 2010 IR/D travel costs for which expense reports had not yet been submitted. In addition, because most expense report data is self-reported by the traveler and we did not verify all reports, our statistical data may not include all IR/D travelers, trips, or costs. Based on our assessment, we concluded the computer-processed data was sufficiently reliable to use in meeting the audit's objective.

We conducted this performance audit between November 2010 and February 2012, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

We held an exit conference with NSF management on February 9, 2012.

Appendix C: Recommendations in the May 2011 IR/D Task Group Report

Recommendations

The Task Group has identified the main issues with the current implementation of the IR/D program. Implementation of the following set of recommendations will improve the management and operation of the program to provide appropriate oversight and accountability of the program. The recommendations fall under four major categories:

- Clarify the scope of the program in support of the stated purpose, including to prospective staff considering employment at NSF;
- Establish appropriate review, approval and oversight mechanisms to track resources expended on program;
- Automate and introduce efficiencies in the creation, review, approval, update, and renewal of plans; and
- Provide appropriate training and continuing guidance to participants, approvers, and managers.

A. Recommendations related to the scope of the program

1. Scope of Program – The program should be focused on independent and original research of the participants and their involvement with activities to create and maintain professional and scientific competencies. Developmental activities related to research activities should be included in the program.

All IR/D plans submitted for approval must have an independent research component. Plans may also have developmental activities. The new Guide to the IR/D Program (discussed below) should include guidance as to which developmental activities are appropriate for an IR/D Plan. The IR/D program should support time and travel costs needed to enable independent and original research activities, developmental activities related to that research, and other research-related activities that contribute to creating knowledge and maintaining the scientific research enterprise of the United States. Training programs and attendance at meetings, conferences or workshops on behalf of NSF, such as representing one's program at PI meetings, or performing outreach to the community should not be included on IR/D plans, as they are within normal NSF duties.

2. Program Transparency for Potential New Staff – Standard information regarding the IR/D program should be provided to all potential staff to increase the consistency of communication across NSF organizations and set realistic expectations regarding the utilization of the program.

Persons being interviewed for positions at NSF should be informed about the program. They should also be informed about certain restrictions associated with the program, and be given realistic expectations of what they may be able to accomplish under the IR/D program. For example, it should be made clear to potential new staff that although NSF strongly supports this program, it is expected that participants and their supervisors will coordinate to minimize any

interference that the IR/D activities have with the participant's assigned responsibilities. It should also be made clear that participation may be curtailed at the participant's request or at their supervisor's discretion, that funding may be limited, and/or that they may determine they do not have time to participate at the anticipated level after they arrive at NSF. We recommend that a one page summary (see Attachment C) be distributed by any recruiting office that discusses the IR/D program with a prospective staff member.

3. Personnel Manual – The NSF Personnel Manual should be modified to reflect the changes listed herein.

The NSF Personnel Manual needs to be updated to reflect the program's revised scope and operation. To the extent possible, processes and guidelines that are likely to change should be included in a separate Guide to the IR/D Program.

B. Recommendations related to review, approval and oversight mechanisms

1. Plan Approval Authorities – Participant plans should be reviewed by a Directorate/Office IR/D Program expert (proposed below) and the participant's supervisor, and then approved by the relevant approving official.

We recommend that Division Directors or Office Directors be designated as the approving official for Program Officers participating in IR/D, that Assistant Directors approve plans for Division Directors, and that the Deputy Director approve IR/D plans for Assistant Directors and Office Directors. These would be designated the relevant approving officials. In addition, all plans must be reviewed by a Directorate/Office IR/D program expert to determine if there are any issues with the proposed plan that may need modification or additional review prior to approval.

The approval process must be clearly described and incorporated into the automated IR/D plan submission system (discussed below). In addition, if certain activities requiring specific reviews are included in the plan, the plan should be routed by the automated system to the appropriate organization for review. An expedited approval process that routes IR/D plans to those who have the knowledge, training, and authority to make decisions will increase the accountability of the program. Providing authoritative resources to assist in the approval process will significantly expedite the approval of the plans. Approvers may consult with the proposed IR/D Council as needed (see below). In addition, Directorate/Office IR/D Experts (see below) should do so if an unusual request is being made for which there is no precedent.

When applicants have a conflict-of-interest with certain institutions and individuals named in their IR/Ds, then others in the organization will need to handle any proposals received from those institutions or individuals. Supervisors should consider this workload impact on other staff when they review IR/D plans.

In the event that there are *substantive* changes in the IR/D, a modified plan should be submitted for approval. For example, significant changes in the research objectives or in the scope of the research would require new approvals. Similarly, a modified plan should be submitted for approval if new collaborations have developed (even if the scope or objectives are not substantively changed), so that conflicts-of-interest can be documented and appropriately managed. Changes in the IR/D plan need to be reviewed by the employee's supervisor and approved by the relevant approving official.

It is understood that the proposed IR/D travel as described in the original plan may change over the course of a year. Since the same person is responsible for approving the employee's travel and IR/D plans, most changes in the cost, location, or dates of IR/D travel will not require modification of the approved IR/D plan. However, the traveler must clearly indicate in the "comments section" of the Travel Authorization for the travel that "This trip is associated with my current IR/D plan, but was not included in the original plan because ..." By virtue of approving these travel authorizations, the supervisor indicates s/he has approved changes in planned IR/D travel.

2. Cost Accounting for the Program – New accounting codes should be created for both the AOAM and Research-related Accounts to provide for the tracking of all expenditures associated with the program.

In order to track IR/D expenditures, the Task Group recommends creating specific IR/D accounting codes. Four new codes should be created – two for AOAM funds and two for Program funds. Within these, one code should be for travel related IR/D expenditures and the other should be for non-travel related IR/D expenditures. The FedTraveler system should be modified to include these new classifications in the drop-down "purpose" field. Also, dual-purpose trips (which include both IR/D and NSF-specific activities), could utilize these financial codes to account for the split sources of funding. Staff will need to be informed and trained to utilize the new financial coding structure.

3. Personnel Resource Accounting for the Program – IR/D participants should account for the time spent performing IR/D activities, which should include travel occurring during the participant's normal workday.

The current NSF time and attendance system is scheduled to be replaced in the Fall of 2011. The new time and attendance system (WebTA) has the potential capability to enable both Federal employees and IPAs to account for time spent on IR/D. Although there are costs associated with enabling IPAs to use WebTA, the new system should be configured to allow all staff, including IPAs, to account for normal workday hours spent on IR/D activities.

In determining what should be included in accounting for time spent on IR/D, the actual cost to NSF is the amount of normal workday time, either on-site or off-site, spent on IR/D activities, including any IR/D activities being performed while at NSF (e.g. conference calls, document review, or meetings conducted at NSF) as well as any travel time needed to get from NSF or

home to the IR/D site. Thus, both the request for IR/D time and the accounting of the time spent on IR/D should include travel time during the participant's normal workday. Total time, including travel time, normally may not exceed 50 days.

Until the WebTA system is available, IR/D participants preparing Travel Authorizations in FedTraveler should note in the "comments section" the number of IR/D days being requested and how many have been used related to their current plan. (e.g. "This trip will be days 14 and 15 under my current IR/D plan."). Days may be counted in half day increments until the WebTA system is available.

4. Annual Accounting – There should be an annual accounting of the utilization of the IR/D for the prior fiscal year.

An annual program accounting will enable the agency to review and assess program utilization. Totals will be created for the dollars and days spent for IR/D activities for each appointment type (Federal employees vs. IPAs) in each division. This report will be distributed to each division, directorate, and office. We recommend that the agency as a whole, as well as individual offices, directorates, and divisions use these data to assess how the program is being used, and to inform future planning.

5. Report of IR/D Activity Results – At the end of each plan year, IR/D participants should provide a short report which includes a brief description of the results of the activities, and any resulting research outputs, including publications.

All IR/D participants should provide an annual report on their IR/D activities to their supervisor and the relevant IR/D Approving Official. This reporting function should be added to the automated IR/D system. The report should be short, typically not more than one or two pages, but should provide the reader with an understanding of the research in progress or the results of the research. The annual report should include a section on the participant's experience with the program. Participants should be encouraged to share the results of their activities both within, and external to, the agency. Approval of subsequent IR/D activities should be contingent upon receiving a report for the previous year. The submission of a final IR/D Report should be added to the NSF Clearance Form (Form 362) as part of the participant's Division/Office responsibilities.

6. Management Oversight – All management officials who supervise IR/D participants and/or approve IR/D plans should be responsible for day-to-day oversight of the IR/D program.

Supervisors and IR/D Approving Officials have an important role in providing day-to-day oversight of the IR/D program. They are involved in initial approval of plans, in approving all travel to support those plans during the year, in approving any changes to the plans, in the receipt of substantive annual reports from participants, and in approving renewals of ongoing plans. To ensure that they have all of the information they need to carry out their oversight

responsibilities, we recommend that HRM develop training materials for these individuals. Oversight of the program can be assisted through on-going dialogue with the participants and via an exit survey provided to staff as they leave NSF.

C. Recommendations related to improvement of preparation and approval process through automation

1. Automation of Participant Plans – Priority should be given to completing the automated system already being developed by the Division of Information Systems (DIS), under the guidance of HRM and OGC, to support the annual development of new program plans by participants.

The current paper-based system is subject to delays in handling and lost or misplaced applicant plans. An automated process that can provide guidance to participants, supports the routing process for approval of plans, and provides a capability that allows the plans to be modified during the year will largely eliminate these issues. Having a central, automated repository of plans will also allow for simplified reporting and analysis. DIS has initiated development of an automated system by which applicants can prepare, modify and route their proposed plan through the appropriate channels for review and approval. The system currently being developed is designed to provide for automatic forwarding of the applications to the appropriate person for review and approval, yet can allow for deviations as required. Additionally, this system should be designed to imbed appropriate explanations and links to relevant guidance which will assist the IR/D applicant in preparing the plan. We also recommend that the automated system include a feature to amend an existing plan, to allow for facile submission and to document approval of any changes.

2. Modification of Plan Template – The template used for the development of a plan should be modified to include interactive review and guidance for the inclusion of common activities that may require special instruction and handling.

The automated system should provide as much assistance and guidance as possible to individuals when they are creating their IR/D plan. This will reduce the number of issues that will be encountered later in the process. The automated plan template should query participants if they intend to include certain types of activities that are known to require additional information, may require additional reviews, or are not allowed. The system can provide immediate guidance to the applicant where such situations exist. For example, if there is the involvement of a foreign government, the applicant should be asked to provide information regarding the type of involvement and then be notified that the plan will be sent to OGC for required review and guidance. Another example is if the participant intends to write a paper, chapter, or book for compensation (royalties or advances). If so, the system should inform the applicants that they must perform these activities on their own time, as the Government can only pay them for activities undertaken as part of an IR/D. This more detailed review at the beginning of the process should significantly reduce the time needed to approve the plans.

Until the new IR/D Plan Template is automated and available, participants should use a new Microsoft Word version of the template (Attachment D). After the plan is approved by the relevant approver (see below), a copy of the plan must be forwarded to HRM. Until the automated system is in place, IR/D plans should be maintained by the IR/D participant, the IR/D participant's organization, and by HRM.

D. Recommendations related to providing training and continuing guidance to participants, approvers and managers.

1. Development of a Guide to the IR/D Program – A guide document should be created to assist staff in the development of IR/D plans.

A Guide to the IR/D Program should be created that provides information and guidance for staff creating, modifying, or renewing an IR/D plan. This Guide should provide the program parameters, information about allowable activities and costs, sample plans, instructions on the use of the automated system, and other information needed to properly complete the initial IR/D plan submission. The Guide should also have sections for participants, supervisors, approvers, and managers that describe their responsibilities regarding the program. This should be a document that is continually updated to reflect current laws, regulations, and policies regarding allowable costs and activities. The Guide should be maintained on-line with links to other appropriate documents and systems.

2. Designation of a Directorate/Office IR/D Program Expert(s) – Each Directorate and Office should identify one or more IR/D Program Experts who will be responsible for reviewing all IR/D requests within that organization.

Each Directorate and Office should appoint one or more IR/D experts who will receive training regarding all aspects of the program. These experts will be notified if there are changes to the laws, regulations, or policies associated with IR/D. They will have access to IR/D Council determinations (see below) regarding specific guidance, updates on permissible IR/D activities and allowable costs. These directorate and office experts will have access to subject matter experts on the IR/D Council for assistance if new or unusual requests or situations arise. After a plan has been reviewed by a Directorate/Office IR/D Expert, the final approval of the plan will reside with the applicant's relevant approving official. Note there are some types of requests that will always need review external to the Directorate or Office, such as plans including the involvement of a foreign government.

3. IR/D Council – An IR/D Council should be created to make determinations regarding allowability of requested IR/D activities and allowable IR/D costs beyond time and travel.

This Council should include a financial expert from DFM, a legal expert from OGC, a travel expert from DAS, and at least two representatives from programmatic Directorates/Offices. A representative from HRM should be on the Council and have responsibility for coordinating and

supporting the IR/D Council's activities. The Council should make determinations expeditiously to avoid delays in processing an IR/D plan for approval. Directorate/Office IR/D Experts and other staff may ask for a determination from the IR/D Council. The Council may consult with other NSF experts as required. Council determinations will be documented and made available electronically to ensure consistency in the application of allowable activities and costs over time and NSF organizations.

We recommend that during the first year of the implementation of the IR/D program that the IR/D Council be tasked with reviewing a sample of approved plans to ensure the new policies have been implemented regarding allowable costs and activities. We further recommend that during the first year the IR/D Council be tasked with periodically convening all of the Directorate/Office IR/D Program Experts to discuss any issues with implementation of the program.

4. Training – Training sessions should be conducted on a periodic basis to assist staff in the development of IR/D plans.

Providing up-front training, guidance, and assistance to staff creating new IR/D plans will result in improved quality of plans which will also expedite approvals of plans. Improved plans will increase the accountability of the program. The training should be no more than one hour and provide an overview of the proposed Guide to the IR/D Program, a demonstration of the automated IR/D system, and enable staff to ask specific questions about the program. This training will be coordinated by the Division of Human Resource Management and should be offered as an optional supplement to the New Employee Orientation and made available to both new and existing staff.




National Science Foundation • Office of Inspector General
4201 Wilson Boulevard, Suite I-1135, Arlington, Virginia 22230

MEMORANDUM

DATE: March 20, 2013

TO: Dr. Cora B. Marrett
Deputy Director, National Science Foundation

FROM: Dr. Brett M. Baker 
Assistant Inspector General for Audit

SUBJECT: *Audit of Cost Associated with NSF's Use of Intergovernmental Personnel Act Assignees*, Report No. 13-2-008

Attached please find the final report of our audit of NSF's use of Intergovernmental Personnel Act assignees. The report contains one finding on the need for NSF to take appropriate action to evaluate ways the cost of using IPAs can be reduced. We have included NSF's response as an appendix to the final report.

To comply with Office of Management and Budget Circular A-50 requirements for audit followup, please provide within 60 calendar days a written corrective action plan to address the report recommendation. This corrective action plan should detail specific actions and milestone dates.

We appreciate the courtesies and assistance provided by so many NSF staff during the audit. If you have any questions, please contact Marie Maguire, Director of Performance Audits, at (703) 292-5009.

Attachment

cc:	Subra Suresh	Allison Lerner
	Eugene Hubbard	Marie Maguire
	Judith Sunley	Kelly Stefanko
	Pam Hammett	Emily Franko
	Clifford Gabriel	Karen Scott
	G. P. Peterson	Michael Van Woert

**Audit of Cost Associated with NSF's Use of
Intergovernmental Personnel Act Assignees**

**National Science Foundation
Office of Inspector General**

March 20, 2013

OIG Report No. 13-2-008



Results In Brief

NSF uses the Intergovernmental Personnel Act of 1970 as its primary way to bring in top scientists, engineers, and educators from universities and industry as temporary staff, called IPAs, to maintain its world-class scientific workforce. The Act's authority frees NSF from the usual hiring constraints on federal employees' pay and benefits, thus NSF can compensate IPAs more than permanent employees in the same positions. NSF also hires temporary staff, who are federal employees and thus subject to federal limitations on pay and benefits, under the Visiting Scientists, Engineers and Educators (VSEE) program.

IPAs remain employees of their home institution while at NSF and NSF matches their home salaries. Also, NSF can pay for temporary living expenses, provide paid time and travel expenses for IPAs to continue research activities at their home institutions, replace lost consulting income, and reimburse IPAs for state taxes they would not have had to pay if they remained at their home institution. Because NSF pays IPA costs out of program funds, reducing these costs could free up more money for research grants. In 2012, we estimated that NSF's additional annual cost for using IPAs instead of permanent employees was approximately \$6.7 million for 184 full-time IPAs, an average of \$36,000 per IPA.

All three parties – NSF, IPAs and their home institutions – benefit from IPA assignments. NSF gains new ideas and expertise from the research community. IPA assignees learn about NSF programs and the merit review process. Finally, the IPAs' home institutions benefit from the knowledge of and experience with NSF and its processes that IPAs bring back when they return. While we recognize the benefits that come from having IPAs at NSF, we did not find evidence that NSF has examined the additional costs incurred as a result of using IPAs and sought ways to reduce those costs. We recommend that NSF evaluate ways to reduce IPA costs, including expanded use of telework and greater cost sharing by IPA home institutions.

We also noted that NSF has not designated anyone responsible for measuring and documenting the impact of rotating personnel, including IPAs, on the agency. As a result, NSF misses opportunities to assess the rotator programs' overall contribution to NSF's mission and goals. As part of enhancing the management and oversight of the IPA program, NSF could consider incorporating a champion responsible for overseeing and managing the rotators programs.

Background

Rotator Programs

To further the agency's mission of supporting science and engineering research and education, the National Science Foundation (NSF) draws on scientists, engineers, and educators on rotational assignment from academia, industry, or other eligible organizations. All of the non-permanent appointments are federal employees, except for Intergovernmental Personnel Act (IPA) assignments, who remain employees of their home institution. NSF also has a program for employing Visiting Scientists, Engineers and Educators (VSEE), and together, these are known as "rotator" programs. Because IPAs are the most significant and prominently used component of the rotator programs, we focused our audit on the IPA program.

Intergovernmental Personnel Act Mobility Program

The Intergovernmental Personnel Act of 1970 provides authority for the temporary assignment of skilled personnel to or from federal, state, local or tribal governments, or institutions of higher education and other eligible organizations without the loss of employee rights and benefits. It permits individuals to serve in a temporary capacity for a period of up to 4 years. IPA assignments are voluntary and must have the agreement of the participating employee. NSF obtains most of its temporary scientists, engineers, and educators using the IPA Act. NSF believes using IPAs in its directorates and offices strengthens its ties with the research community and provides the talent and resources that are critical to meeting NSF's mission. Using the Visiting Scientists, Engineers and Educators (VSEE) program, NSF obtains a smaller number of individuals who become temporary NSF employees for up to 2 years.

IPAs remain employees of their home institutions, and the home institutions administer the IPAs' pay and benefits. Accordingly, IPAs are not subject to federal pay and benefits limitations. It is important to note that NSF's source of funding for IPAs is different from the appropriation that funds its employees. NSF reimburses the home institution for an IPA's salary and benefits using grants funded through its program-related appropriations. Appendix C outlines how benefits and salaries are funded and paid for IPAs and federal employees.

A branch in NSF's Division of Human Resource Management provides recruitment and employment support services for IPAs, such as calculating compensation and coordinating with the IPA's home institution. Although the frequent turnover associated with temporary assignments may create an additional workload beyond what is required in hiring permanent employees, we did not attempt to quantify the additional costs NSF incurs in administering the IPA program.

NSF's Use of IPAs

In August 2012, IPAs comprised approximately 12 percent of NSF's overall workforce, including approximately 31 percent of all program director positions and 17 percent of NSF's executive positions, such as Assistant Directors who lead NSF's science directorates. IPAs comprised less than one percent of the workforce for all five of the

other science-centric federal agencies we contacted.¹ In addition, IPAs at those federal agencies were generally used in research related positions, such as science advisors, and did not typically fill management positions.

While our audit was underway, NSF Office of the Director prepared a white paper (Appendix D) to elaborate on the value and benefits of IPAs. This document articulated how IPAs contribute to NSF's mission and how the flexibilities afforded by the IPA Act help it attract leading scientists, engineers, educators and others. The document also stated that it is a "constant challenge" for NSF to attract top level talent and stated that even with the additional flexibility provided by the IPA Act, "NSF still struggles to attract the Nation's leading researchers to temporary public service".

As shown in the chart that follows, the number of IPAs NSF uses annually has increased from 126 in 2004 to 190 in 2012, with IPAs growing from 9 to 12 percent of the NSF workforce over that period.

Trend of IPAs as a Percentage of NSF Total Workforce²

Year	Number of IPAs	Total NSF Workforce	% IPA of Total NSF Workforce
2004	126	1,372	9%
2006	149	1,407	11%
2008	160	1,468	11%
2010	167	1,530	11%
2011	178	1,528	12%
2012	190	1,545	12%

We obtained from NSF's Division of Human Resource Management a list of all IPAs and related costs as of August 1, 2012. We removed 14 part-time IPAs from the population to avoid skewed data, for a total of 184 full-time IPAs as of August 1, 2012 to use for our audit scope.

Results of Audit – Additional Cost of Using IPAs

NSF strives to make IPAs "whole" by providing the salary and fringe benefits they were earning at their home institutions, as well as reimbursing them for travel to NSF, temporary living expenses, lost consulting income and state income taxes if the IPA is from a state that does not have an income tax.

¹ Department of Energy, the National Aeronautics and Space Administration, the Department of Health and Human Services National Institutes of Health, the Environmental Protection Agency, and the Department of Defense Army Research Laboratory.

² Source: NSF workforce profile reports prepared by NSF's Division of Human Resource Management, Workforce Planning and Analysis Branch.

The additional cost of using IPAs in lieu of hiring permanent federal employees is significant. We found that NSF paid an annual, additional cost of approximately \$6.7 million or an average of over \$36,000 per IPA, for the 184 IPAs we examined. The chart that follows shows the cost in greater detail.

Annual Additional Cost of Using IPAs vs. Permanent Federal Employees

Additional Cost	Total Additional Cost for 184 full-time IPAs (at NSF as of 8-1-12)	Average Additional Cost per IPA
Salaries*	\$3,021,205	\$16,420
Fringe Benefits*	787,147	4,278
Lost Consulting	337,823	1,836
Relocation/Temporary Living Expenses	1,438,696	7,819
Independent Research and Development Travel	1,077,468	5,856
State Tax Reimbursement	44,000	239
Total Annual Additional Cost	\$6,706,339	\$36,448

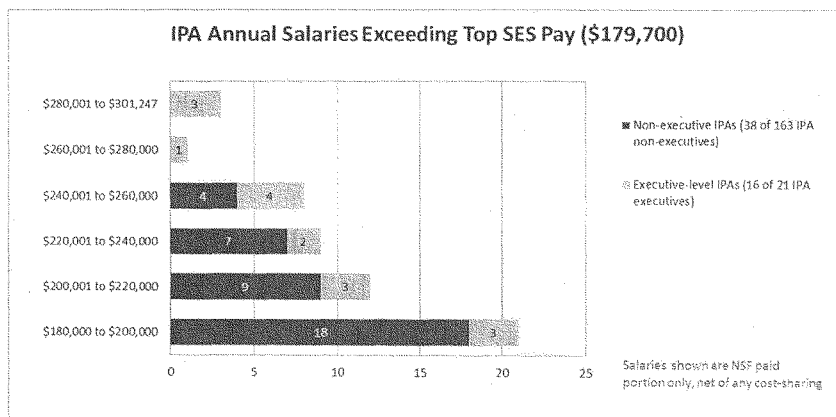
*The amounts shown for salary and fringe benefits are the amounts NSF paid, which are net of any cost share received from IPAs' home institutions.

Salaries: For one year, NSF incurred an additional cost of slightly over \$3 million for IPA salaries.³ We considered additional cost to be the cumulative amount an IPA's salary exceeded the average salary for a permanent federal employee in the same or a comparable position.

In August 2012, NSF had 21 IPAs at the executive level and 163 non-executive IPAs, 154 of which were program directors. NSF paid 54 IPAs salary exceeding the federal executive pay limit of \$179,700, which is the highest salary earned by a federal employee at NSF, including presidential appointees. NSF paid 34 of these IPAs an annual salary of \$200,000 or more, with the highest annual salary of \$301,247 paid to an Assistant Director.

The following graph illustrates the number and range of IPA salaries that NSF paid in 2012 that exceeded the maximum salary for federal executives at NSF.

³ To estimate the additional salary paid to IPAs, we calculated the average annual salary actually paid to permanent employees in positions equivalent to those filled by IPAs by position-type (i.e., \$161,325 for Program Directors and \$172,408 for Senior Executive Service staff). For each IPA that was paid more than the average salary of his or her permanent employee counterpart, we considered the difference to be an incremental salary cost, for a total of \$3,021,205.



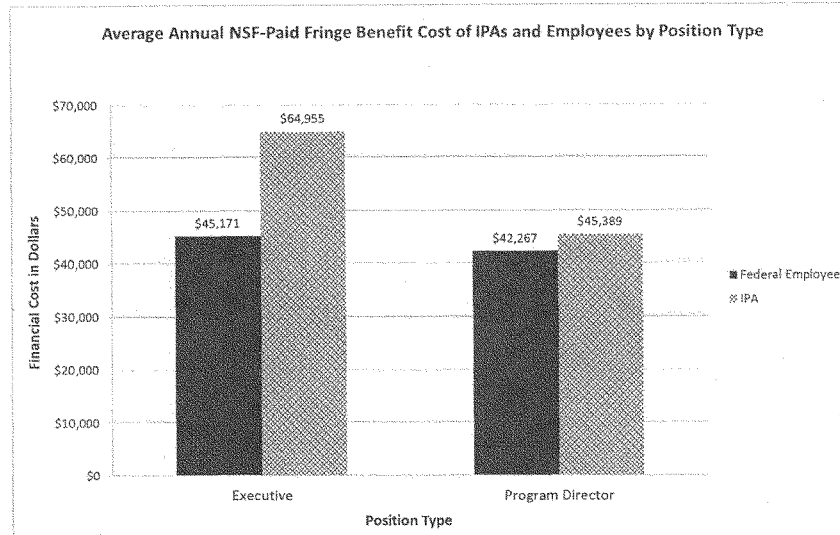
Fringe Benefits:

IPAs continue to receive fringe benefits (such as retirement and health and life insurance) from their home institution. We calculated that NSF paid nearly \$800,000 in additional fringe benefit cost for IPAs.⁴

NSF does not know the individual components (health insurance, retirement, child care, etc.) or cost comprising the fringe benefit packages it pays for IPAs. NSF reimburses the home institution for its contribution to the IPA's fringe benefit package based on a percentage or dollar amount provided by the institution. Because of the wide variety of fringe benefits that can be provided by an employer, cost of fringe benefits for IPAs varies widely. For the 184 IPAs we examined, NSF paid employer contributions for the IPA fringe benefits at rates ranging from 8 to 60 percent of salary, with an average rate of 31 percent of compensation. In comparison, NSF paid its permanent employees an average fringe benefit rate of 26 percent of compensation.

The following graph provides a side-by-side comparison of NSF-paid fringe benefits (net of cost-share) for both IPAs and comparable permanent federal employees by position type.

⁴ To estimate the additional cost of fringe benefits paid to IPAs, we calculated the average annual salary paid to all permanent employees, both Program Directors and Senior Executive Service staff combined, in positions equivalent to those filled by IPAs (\$162,604). We multiplied this average salary by the average fringe benefit rate NSF paid its permanent employees (26.2%), for average fringe benefits of approximately \$42,602 for a federal employee. We then multiplied this \$42,602 by 184 full-time IPAs for a total of \$7,838,768, an estimated annualized total fringe benefit amount NSF would have paid its 184 IPAs had they instead been federal employees. We then subtracted this amount from the total annualized fringe benefits paid to IPAs (\$8,625,915) to obtain the additional fringe benefits paid to IPAs of \$787,147.



Lost Consulting: IPAs can receive up to \$10,000 annually to replace consulting income they had been earning if they agree to discontinue consulting activities while on assignment at NSF and can provide tax records to support the amount earned. Permanent federal employees do not receive payments for lost consulting income; therefore, all lost consulting paid is an additional cost to NSF. NSF paid 58 of the 184 IPAs (or 32 percent) lost consulting payments at a total annual cost of \$337,823. The average amount NSF paid to IPAs that received lost consulting was \$5,726, with payments ranging from \$500 to one IPA to \$10,000 to 13 IPAs.

Temporary Living Expenses: IPAs can receive a household move or partial reimbursement for lodging, meals and incidental expenses (i.e., per diem) for temporarily relocating to NSF for the duration of their assignment. Ninety-two percent of the 184 IPAs we examined (169 of 184) came from outside of the Washington, DC metropolitan area and all opted to receive temporary living expenses (per diem paid at a maximum of \$22,507 for each year of their assignment) instead of relocation expenses to move their household, costing NSF approximately \$3.8 million annually.

In comparison, over the most recent 2 year period, NSF hired a total of 77 permanent federal employees, for an average of 39 per year, in positions similar to those held by IPAs (such as in science directorates and the Office of the Director). Of these 77 new

hires, 51 percent were paid relocation expenses, which cost NSF an average of \$501,274 in the period we examined.⁵

Annual Additional Cost for Relocation/Temporary Living Expenses			
	IPA	Fed	Difference
Total people	184	39	
Annual total cost	3,803,683	501,274	
Per person cost	20,672	12,853	7,819
x the number of IPAs			184
Additional cost for IPAs			1,438,696

To determine the added cost of using IPAs, we calculated the difference between the per-person cost of temporary living expenses paid to an IPA, and the per person cost of relocating a permanent federal employee. We then multiplied that amount by the total number of IPAs to estimate the incremental cost of using IPAs.

As shown in the chart above, we estimate that NSF paid an additional cost of \$7,819 per IPA, for a total of over \$1.4 million for the 184 IPAs in 2012. It is important to note that employee relocation costs are paid one time, while IPA per diem is paid annually.

Independent Research and Development Program: The Independent Research and Development (IR/D) program provides IPAs paid time and travel to return to their home institution and continue their research while working at NSF. NSF allows IR/D participants to spend up to 50 work days a year on IR/D. While this opportunity is available to all NSF staff, IPAs are its primary users. Of the 184 IPAs we examined, 171 (93 percent) participated in the IR/D program in 2012.

A 2012 NSF OIG audit found that most IR/D travel in 2010 was taken by IPAs, typically travelling to and from their home institution and spanning the weekend.

Because IPAs are much more likely to participate in IR/D and to travel as part of their IR/D, than permanent employees, NSF incurs additional cost in providing the IR/D benefit for IPAs. For the one-year period ending 8/1/2012, we estimated⁶ that NSF spent nearly \$1.3 million in travel cost to support IPAs' IR/D activities as compared to \$183,631 for permanent federal employees' IR/D activities. Therefore, we consider the \$1,077,468 difference an additional cost of IPAs.

⁵ We used an average of the last 2 FYs of relocation expenses because the amounts varied significantly: relocation costs in FY 2011 were \$702,217, while such costs in FY 2012 (through September 14, 2012) totaled \$300,332.

⁶ Beginning in May 2012, NSF instituted new program element and object class codes to better track the costs of IR/D activities. In the future, the travel costs of IPAs and government employees can be readily compared. Since these codes were not in place at the time of our audit to capture a full year's expenses, we alternatively estimated IPA and permanent employee IR/D travel costs using costs captured by the NSF travel system.

State Tax Reimbursement: NSF will reimburse IPAs for state tax paid on income earned while on assignment at NSF if they are from one of the 9 states that does not have a personal state income tax. NSF estimates it has between 5 and 10 IPAs from those states each year. Because NSF does not pay this cost for its permanent employees, the total \$44,000 NSF paid for this cost in Fiscal Year (FY) 2012 was considered an additional cost of using IPAs. Since state income taxes had not been assessed for 2012, we used the amount NSF paid for this cost in FY 2012 (\$44,000) as an estimate.

Finding – Opportunities Exist to Reduce Cost of IPAs

As noted previously, all parties - NSF, the IPA, and home institutions - benefit from the authorities in the IPA Act. The standard language in all IPA agreements that NSF, IPAs, and home institutions all sign acknowledge this mutually beneficial arrangement and state that assignments “serve a mutual public purpose.”

A January 2013 white paper on the value of IPAs prepared at the request of the National Science Board, confirms that, “NSF benefits greatly by relying on the up-to-date expertise of leading external researchers to help shape its funding programs to support transformational advances across the frontiers of all fields of science, engineering, and education.” Through their assignment, IPAs learn about NSF, including the merit review process. The paper confirms NSF’s expectation that, when researchers conclude their IPA assignments, knowledge of NSF policies and practices is transferred to their home institution and the broader scientific community.

We do not question the fact that IPAs bring benefits to NSF, but there are costs associated with those benefits. During the period we examined, NSF expended approximately \$6.7 million more in using IPAs in lieu of hiring permanent federal employees. In a time of austerity, it is important to evaluate all costs and identify opportunities for savings. Costs for federal employees are currently being carefully examined and controlled. Federal pay has been frozen for two years and strict limits have been placed on bonus pools for the same period. At the same time, close attention is also being paid to funds for travel and training. Under the circumstances, NSF should be carefully examining costs associated with IPAs, in particular, since savings there free up funds for additional research.

While we recognize the benefits that come from having IPAs at NSF, we did not find evidence that NSF has examined the additional costs incurred as a result of using IPAs and sought ways to reduce those costs. In fact, in some instances, the agency is routinely deviating from policies that were instituted to lessen the financial impact of using IPAs.

We identified several possible ways that costs associated with IPAs could be reduced. We recommend that the NSF Director take appropriate action to evaluate these and any other actions which could lessen the cost of IPAs.

Increase Use of Telework from Home Institution for IPAs

NSF spends a substantial amount of money to bring and keep IPAs on site at its Arlington, VA headquarters for the duration of their assignments, which can last up to four years. Two of the largest incremental costs that NSF incurs in using IPAs in lieu of permanent employees (temporary living expenses estimated at \$1.4 million annually and travel for IR/D estimated at almost an additional \$1.1 million annually) are largely a result of IPAs relocating for their assignment. Reducing IPAs' time spent on-site could provide NSF opportunities to reduce these costs.

Reducing IPAs' time spent on site could also help the agency deal with space constraints. Office space at NSF's current headquarters is already limited and it is uncertain whether the situation will be improved when the agency executes a new lease after the expiration of the current one in 2013. If the space available for federal employees' offices declines, it is possible that NSF will have to increase the use of telework for all staff, including IPAs. To avoid the prospect of paying IPAs to come to NSF to work, then having to have them telework from their new home in Virginia, it is important that NSF consider how much time IPAs need to be physically present at NSF to effectively fulfill the duties of their assignments.

In the time since 1970 when IPAs were first authorized, there has been an evolution in remote-working options. In light of these advancements in working off site, NSF should examine how often IPAs need to be at NSF during their assignments. NSF already utilizes a number of technologies that enable remote participation, such as teleconferences, videoconferences, and online meetings that could enable IPAs to work primarily from their home institutions. Increased IPA usage of these technologies could reduce IPAs' time on site. For example, NSF could decide that IPAs only need to be at NSF for an initial training period to get acclimated to the federal work environment before allowing them to work primarily from their home location, with infrequent travel to NSF headquarters.

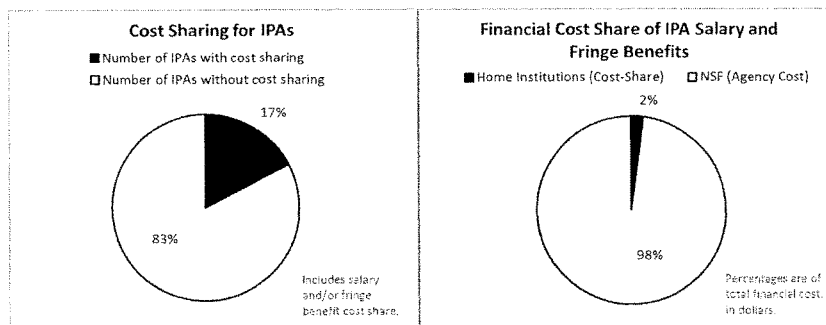
Some IPAs, especially those at the executive level, may need to be on-site more than others. However, of the 184 IPAs at NSF during the period we examined, only 21 were at the executive level while 163, or 89 percent, were at non-executive staff levels. Given the large number of IPAs below the executive level, in addition to the availability of tools to enhance remote working, an increased use of telework for IPAs seems to be a realistic option.

Increase Cost Sharing by IPA Home Institutions

As previously stated, IPA assignments benefit NSF, IPAs, and the home institution. In this vein, NSF's policy is to request IPAs' home institutions to voluntarily share at least 15% of salary and fringe benefit cost.

We found NSF only received cost sharing for 32 of 184 IPAs in 2012, including some institutions that shared at rates as low as 3 and 4 percent. NSF's receipt of cost sharing has declined from 33 percent of IPAs in the mid-1990s to 17 percent as of August 1, 2012. The \$668,655 institutions paid toward salaries of the 184 IPAs we examined

reduced NSF's cost for those IPAs on a dollar-for-dollar basis. If NSF increases the amount and frequency of home institutions sharing the cost of IPA salary and fringe benefits, the agency has the potential to achieve substantial savings.



NSF could also consider expanding the types of costs it requests institutions to share. As noted, NSF currently seeks cost share only for IPAs' salary and fringe benefits. For example, NSF could ask institutions to share in the cost of IPAs' participation in IR/D. Ninety-three percent of IPAs participated in the program and typical IR/D activities, such as IPAs returning to continue research and to serve as a thesis advisor for students, benefit the home institutions as well as the IPAs. Sharing the cost of such activities with the IPAs' institutions could yield additional savings.

Limit Salary Annualization to the Maximum Federal Pay Rate for the Position

IPAs' salaries at NSF are calculated based on the salaries IPAs receive at their home institutions. When IPAs are paid on a 9 month, academic calendar basis at their home institutions, NSF annualizes that salary to cover the 12 months IPAs will be working at NSF. By annualizing the 9 month salary on a straight basis, NSF makes the IPA's salary equal to what he or she would earn if they received a 12-month, rather than a 9-month, salary from their home institution. Under this process, an IPA earning \$10,000/month at his home institution for 9 months, receives an annual salary of \$120,000 (12 x \$10,000) at NSF.

In 1998, NSF developed a modified formula to annualize IPA academic salaries which limited the amount NSF paid for the 3-month summer period to the maximum federal pay rate for that position. Unless the Deputy Director grants a waiver, NSF should use this modified formula. We found that for higher paid IPAs, individual science directorates and offices responsible for salary negotiations rarely used the modified formula in annualizing IPA salaries and routinely requested and received waivers. The financial impact of such waivers is significant given the number of IPAs making over the maximum federal amount (54 out of 184). For example, in 2012, NSF only used the modified formula to set the salary of less than half (39 percent) of applicable IPAs. NSF did not use the modified formula to annualize the salary of any IPAs at the executive level and many of the highest paid IPA program directors.

According to the human resource staff who provide administrative support for IPAs, NSF generally pays the higher salary amount as the IPA may not accept the assignment otherwise. We did not see any evidence that NSF had attempted to negotiate salary with IPAs. Greater use of the modified formula could result in cost savings as illustrated below.

Comparison of NSF's Methods for Annualizing Academic Salaries	
Example: Executive level IPA earning 9-month salary of \$225,935 at home institution	
Federal maximum salary for executive level: \$179,700/12 months = \$14,975/month	
Home salary of IPA: \$225,935/9 months = \$25,104/month	
Straight Annualization of IPA Salary	Modified IPA Salary Calculation
Monthly home salary x 12 months	Monthly home salary x 9 months + monthly fed max x 3 months
\$25,104 x 12 = \$301,248	\$25,104 x 9 months + \$14,975 x 3 months = \$270,861
Difference in using modified calculation = reduced annual cost to NSF of \$30,387	

Review IPAs with High Fringe Benefit Rates

The average fringe benefit rate for permanent employees is 26 percent, while the average IPA fringe benefit rate is 30 percent for the 184 IPAs we examined. While NSF relies on the home institution's certification that the information provided is truthful, complete, and complies with NSF requirements on the types of fringe benefits NSF will reimburse to the institution, NSF generally does not know the specific components included in an IPA's fringe benefit amount.

We found that NSF paid fringe benefits at a rate of 50 percent or more of salary to 11 of the 184 IPAs we examined. NSF should examine the components of fringe benefits for those IPAs whose fringe benefits rate exceeds a certain percentage determined by NSF. This examination would ensure that the fringe benefits do not include items that NSF does not permit. Further, NSF could consider requesting cost sharing for those IPAs with a fringe benefit rate that exceeds a certain percentage.

Recommendation

We recommend that the NSF Director take appropriate action to evaluate ways the cost of using IPAs can be reduced. Such actions could include studying expanded use of telework, greater cost sharing, limiting annualization of IPA salaries to the federal pay rate for the position, and reviewing fringe benefit rates that exceed an amount determined by NSF.

Other Matters

Long Term Vision and Overarching Champion for Rotator Programs

As this report makes clear, NSF invests a significant amount of time and money into bringing IPAs into the agency. While our audit was underway, the agency prepared a whitepaper to describe the value and benefits of IPAs to NSF (see Appendix D). The document produced details at a high level how IPAs contribute to NSF's mission and how the flexibilities afforded by the Intergovernmental Personnel Act help NSF attract leading scientists, engineers, educators, and others. It did not demonstrate, nor did we find during the course of our audit, that anyone at NSF was responsible for measuring and documenting the impact of rotating personnel, including IPAs, on the agency as a whole. As a result, the agency misses opportunities to assess the rotator programs' overall contribution to NSF's mission and goals. Given the number of IPAs at NSF at any given moment, their prevalence in the highest ranks of the agency and the added costs that result from their use, it would be helpful if NSF designates a champion responsible for overseeing and managing the rotator programs as a whole. Such a person could, among other things:

- Establish long-term goals for the programs and measure progress toward them,
- Examine IPAs' experiences at NSF in order to identify ways to improve the program and make it more attractive to potential candidates,
- Track and examine the cost of the programs to ensure that they are consistent across directorates and identify opportunities for savings, and
- Study the impact of having IPAs on federal employees and identify any actions that should be taken to minimize negative impacts.

Because our audit focused on the cost of IPAs, we are not making a specific recommendation to this effect. We include the suggestion in other matters for the agency's consideration.

NSF Policy for IPAs

Also during our audit, we noted that NSF's practices related to IPAs, such as the length of time IPAs are entitled to per diem, are not reflected in its policy on the administration of IPAs. NSF should revise its policy to reflect its practice of administering IPAs.

Manual Computation of IPA Salary and Fringe Benefits

The manual computation of IPA salary and fringe benefit, previously cited in our 2004 audit remains a concern. NSF agreed with the OIG's recommendation to develop a system to automate the IPA salary and benefits computation process; however, citing budgetary constraints and its inability to find a suitable system, NSF did not implement the recommendation. Although we did not specifically test for manual computational errors, we maintain that an automated tool could more accurately compute IPA salaries and other payments.

Summary of Agency Response and OIG Comments

NSF management concurs with our recommendation to evaluate ways the cost of IPAs can be reduced. NSF management agreed that all parties – NSF, the IPA and the home institution – benefit from authorities in the IPA Act. NSF responded that it routinely scrutinizes costs associated with the IPA program and that it agrees it is prudent to see if cost reductions can be achieved, especially in light of the austere budget environment. NSF also responded that it must balance cost reductions with possible effects on recruitment efforts.

We consider management's comments to be responsive to our recommendation. We look forward to receiving the Corrective Action Plan and working with NSF officials to confirm implementation.

We have included NSF's response to this report in its entirety as Appendix A.

OIG Contact and Staff Acknowledgements

Marie Maguire – Director of Performance Audits
(703) 292-5009 or mmaguire@nsf.gov

In addition to Ms. Maguire, Kelly Stefanko and Emily Franko made key contributions to this report.

Appendix A: Agency Response

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22203


NSF

March 11, 2013

OFFICE OF THE
PRINCIPAL INVESTIGATOR

MEMORANDUM

TO: Ms. Allison Lerner
Inspector General, NSF Office of Inspector General

FROM: Dr. Cora B. Marrett 
Deputy Director, NSF

SUBJECT: Audit of Cost Associated with NSF's Use of Intergovernmental Personnel Act Assignees

NSF appreciates receiving the findings and recommendations contained in the draft report *Audit of Cost Associated with NSF's Use of Intergovernmental Personnel Act Assignees*. IPAs contribute greatly to NSF's mission by providing up-to-date expertise and an influx of new ideas, helping to shape NSF's funding programs to support transformational advances across the frontiers of all fields of science, engineering and education. As noted in the report, all parties—NSF, the IPA, and the home institution—benefit from authorities in the IPA Act.

NSF routinely scrutinizes costs associated with the IPA program, particularly questioning unusual expenses or costs. NSF also agrees it is prudent to see if cost reductions can be achieved, especially in light of the austere budget environment that NSF and all Federal agencies currently face. Thus, NSF concurs with OIG's recommendation to evaluate ways the cost of IPAs can be reduced, fully realizing that we must also balance that consideration with the possibility that certain reductions might adversely affect our recruitment efforts or serve as a disincentive for IPAs to come to NSF.

NSF will submit a Corrective Action Plan after receipt of the final report. Please let me know if you have any questions.

Cc: Subra Suresh
Gene Hubbard
Marty Rubenstein
Larry Rudolph
Judy Sunley
Kay Rison
Clifford Gabriel

Appendix B: Objective, Scope and Methodology

We performed this audit to determine the additional costs of IPAs as compared to federal employees in equivalent positions. Our scope included all (184) full-time IPAs on-board at NSF as of August 1, 2012 and related costs. Auditors judgmentally selected August 1, 2012, as a current date at the time of fieldwork. We did not include NSF's approximately 40 Visiting Scientists, Engineers and Educators, who are also rotating personnel, in our audit scope.

To complete our objective, we utilized data on the costs of IPAs and permanent federal employees from a variety of NSF sources to calculate the additional costs NSF incurred; reviewed NSF and federal criteria to understand the rules governing IPA compensation; interviewed staff administering NSF's IPA program in NSF's Division of Human Resource Management to gain an understanding of their procedures with respect to administering IPA assignments; and confirmed this understanding by examining a judgmental sample of IPA files maintained by NSF.

We reviewed NSF's compliance with applicable provisions of pertinent laws and guidance, including:

- 5 CFR PART 334 – *Temporary Assignments Under the Intergovernmental Personnel Act*
- The U.S. Office of Personnel Management, *Provisions of the IPA Mobility Program*
- NSF Manual 14, *Personnel Manual*

We did not identify any instance of noncompliance with these laws and regulations.

Through interviewing NSF staff and reviewing documentation, we also obtained an understanding of the management controls over the administration of IPA assignees. We identified ways that cost associated with IPAs could be reduced. However, we did not identify any significant internal control deficiencies or instances of fraud, illegal acts, violations, or abuse.

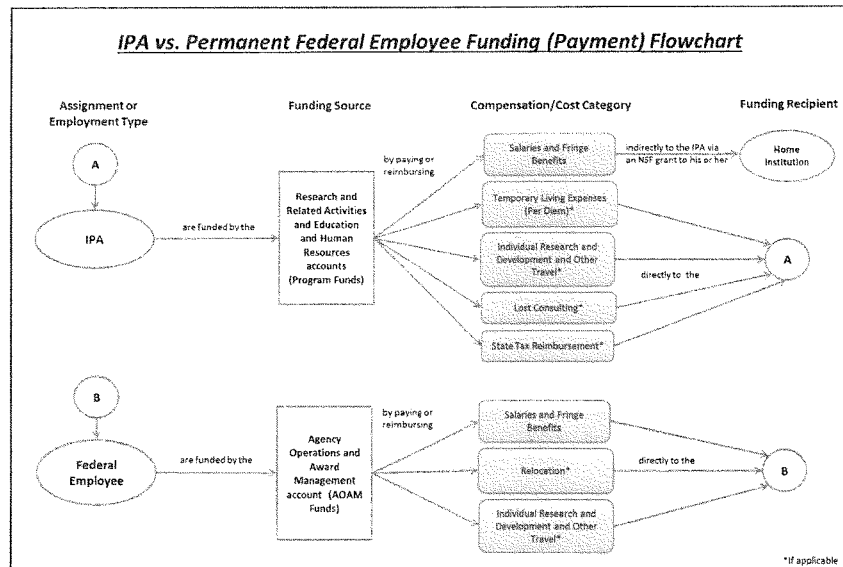
During the course of this audit, we relied on information and data received from NSF in electronic format that had been entered into a computer system or that resulted from computer processing. We tested the reliability of NSF's computer-processed data through a variety of means including manually reperforming calculations, matching numbers against original source documents, and corroborating results with NSF officials independent of the computer system. Based on our assessment, we concluded the computer-processed data was sufficiently reliable to use in meeting the audit's objective.

We conducted this performance audit between June 2012 and February 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our finding and conclusions based on our audit objective.

We believe that the evidence obtained provides a reasonable basis for our finding and conclusions based on our audit objective.

We held an exit conference with NSF management on February 7, 2013.

Appendix C: Flowchart Comparing IPA to Permanent Federal Employee Funding and Payment



Appendix D: NSF Paper on the Importance of IPAs

NATIONAL SCIENCE FOUNDATION AND THE INTERGOVERNMENTAL PERSONNEL ACT

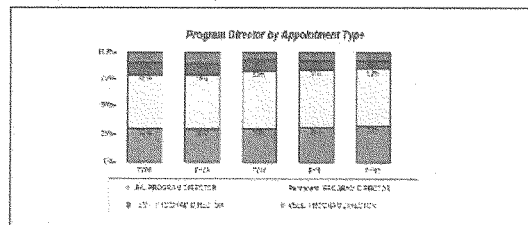
The mission of the National Science Foundation (NSF) is "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF achieves this vital mission by funding programs that support world-class research and education activities. To help guide and manage these programs, NSF relies upon the expertise of some of the Nation's leading scientists, engineers, and educators, thereby ensuring our Nation remains at the forefront of scientific and engineering discovery.

NSF attracts many of these outstanding leaders to government service through the authorities provided by the Intergovernmental Personnel Act (IPA), passed by Congress in 1971. IPAs (individuals who come to NSF under this authority) bring a constant influx of new ideas and fresh approaches to old problems. They help assess and fund high-risk/transformational projects and enable NSF to obtain the benefit of new and innovative research and management directions. NSF has other authorities¹ to hire staff on a rotating basis, but only the authorities under the Intergovernmental Personnel Act provide NSF with enough cost reimbursement capability to allow many of the Nation's most prominent scientists, engineers and educators to commit to public service for a short period of time.

While NSF's permanent staff are highly knowledgeable and capable, the ever changing global science, engineering, and education landscape requires NSF to continually complement its permanent staff with the expertise of individuals from the broader research and education community (mostly from academe). This is especially true for NSF, since it is the only major federal R&D funding agency without its own cadre of intramural (in-house) researchers. As a result, NSF benefits greatly by relying on the up-to-date expertise of leading external researchers to help shape its funding programs to support transformational advances across the frontiers of all fields of science, engineering, and education. NSF maximizes the programmatic strength of its staff through a mix of permanent and rotating staff. Currently, IPAs constitute roughly 30% of NSF's Program Directors. (See Figure)

NSF Program Directors by Appointment Type

NSF Employees (excludes NSB and OIG)



¹ In addition to the use of authorities provided through the Intergovernmental Personnel Act, NSF also uses other hiring authorities to attract rotating scientists, engineers, and educators (e.g., Federal Temporary Employees and Visiting Scientists and Engineers and Educators). All these authorities provide a suite of tools to ensure NSF has access to the Nation's significant pool of talent that can be brought to bear on achieving NSF's mission.

A 2004 report² by the National Academy of Public Administration (NAPA) recommends "NSF continue to use rotators [IPAs and other categories of temporary hires] in the positions of program officers, managers, and assistant directors." In this report, NAPA clearly articulates and reaffirms NSF's need for a steady infusion of new ideas from the research community to support NSF's unique role in the Nation's science and engineering enterprise.

While NSF benefits greatly from the infusion of new ideas from IPAs, NSF's outreach activities also benefit by having such prominent researchers serve as NSF "ambassadors." Experience shows that the best way to gain familiarity with an institution, its practices, and its culture is to spend time within the institution. By working side-by-side with other rotating staff and with the permanent workforce, IPAs learn about NSF, including the rigorous merit review process used to evaluate tens of thousands of grant applications. Consequently, when these leading researchers conclude their IPA assignments and return to their home institutions, knowledge of NSF policies and practices is not only transferred to their home institution, but also to the broader scientific, engineering and education community. Such knowledge transfer is critically important to retaining the community's trust in NSF's merit review procedures and in recruiting others to serve the Foundation as future staff, reviewers and advisors.

Attracting top level talent from our universities and elsewhere is a constant challenge. As identified in the 2004 NAPA report, NSF rotators often must maintain two households, interrupt research and education activities, and forego consulting income. In addition, the current federal pay ceiling at NSF is well below the salaries of many leading researchers that NSF needs to attract. This is especially true for IPAs serving NSF in an executive capacity. The statutory authorities governing the recruitment of IPAs provide options to lessen the economic impact of temporary service to NSF. Under the authorities of the Act, the IPA's home institution can be reimbursed by NSF to cover the IPA's full salary. Also, through NSF's Independent Research/Development (IR/D) program, IPAs have access to a limited amount of funding to support the continuation of some of their research-related activities. Even with the additional flexibility provided by the Act and the additional support provided by the IR/D program, NSF still struggles to attract the Nation's leading researchers to temporary public service.

In summary, the authorities under the Intergovernmental Personnel Act enable NSF to attract and utilize the expertise of the Nation's very best researchers and managers. Through the use of IPAs, as a complement to NSF's career staff and other rotating staff, the Foundation's programs have remained at the forefront of science, engineering, and education.

² National Academy of Public Administration. 2004. National Science Foundation: Governance and Management for the Future. 148 pp.

